

By **GEORGE F. TAUBENECK**

Stories of the Week

Mr. Sandman
Hey, Giuseppe, Who's Da Little Guy With Chet?
Quick Cracks

Stories of the Week

Two buck deer were shooting the breeze.

"Wish I had his doe," envied one.

"Your hair looks like a mop," Pop disgusted.

Nina Nineteen genuinely was puzzled. Wondered she:

"What's a mop look like?"

Mr. Sandman

Retailers attending the annual convention of the National Appliance & Radio-TV Dealers Association got a big charge out of the way Lynn A. Williams, Chicago attorney, began his talk on "The Dreams and Realities of Fair Trade."

"I shall begin," Williams said, "by telling you of a dream of my life as a retailer in the radio and appliance field."

"In my dream, my nice new store is on a busy street in a lovely and exclusive neighborhood. I own the store and have a reliable tenant upstairs whose rent meets the mortgage payments (interest and principal), the taxes and insurance, and the water, gas, light, and fuel bills. The tenant also does the janitor's work."

"But the best thing about my store is one product, the name and type of which you will have to let me keep secret. Since this is a dream, I will call it Sandman, spelled Psandmann."

"The product is really a kind of necessity. Everybody—men, women, and children—needs it. It has been on the market about ten years, so everybody knows about it—no need to waste time demonstrating or explaining it to a lot of meatheads who don't know what goes on."

"There is no market saturation. Psandmann has been designed to wear out, suddenly and completely, in its fourth year. When it does, the user wants a new one. Of course, there are no trade-ins because the fourth year breakdown is so complete that a busted Psandmann is not only utterly worthless but, more than that, everybody knows it and acts accordingly. . . ."

"Psandmann sells particularly well in the off-season, but also has a good Christmas run, another in the spring, another for June brides, another with the summer heat, and another with the back-to-school season—although the best time of all is Halloween."

"It is nationally advertised in the leading magazines, on the radio, and with color television. There is a cooperative advertising plan under which its manufacturer carries 80% of the cost; the other 20% is carried by the distributor. The factory supplies a floor demonstrator on the days I want to attend Kiwanis or play golf."

"Psandmann comes in one model, all packaged and wrapped. Ninety-day dating is granted for each of the eight peak seasons. The price is increased about once a year with plenty of notice for inventory buying. There are unlimited return privileges."

"Service is handled by a factory branch about six blocks away and usually on a replacement basis. I have an exclusive franchise for my area. . . ."

"There are three convenient wholesalers, and I split up the business to keep them on their feet."

(Concluded on Page 8, Col. 1)

ISSUED EVERY MONDAY AT 430 W. FORT ST., DETROIT 26, MICHIGAN. ESTABLISHED 1926.

AIR CONDITIONING & REFRIGERATION News

THE NEWSPAPER OF THE INDUSTRY

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Big Last Quarter Gain

1954 Commercial Distributors' Sales, Profits Up, NCRSA Finds

PHILADELPHIA — An increase of 11.5% in total dollar sales and a jump of 27.93% in dollar net profit before taxes in 1954 as compared with 1953 was reported recently by commercial refrigeration distributors submitting figures to the National Commercial Refrigerator Sales Association.

These distributors also reported that total dollar sales for the fourth quarter of 1954 were, on the average, 25.73% higher than in the same quarter of 1953.

Inventory at the end of 1954 was up 18.48% over the end of 1953 while accounts receivable on the same dates were up 17.27%.

Using figures for 1949 as a base,

	1949	1950	1951	1952	1953	1954
Total Dollar Sales	100%	122%	123%	146%	167%	186%
Dollar Net Profit						
Before Taxes	*	*	*	100%	106%	136%
Inventory (Dec. 31)	100%	147%	157%	163%	182%	205%
Accounts Receivable (Dec. 31)	100%	127%	121%	134%	142%	167%

*Figures not available; Base year is 1952 rather than 1949.

2 Retailers Get Credit for Sales Rise In Nashville

NASHVILLE, Tenn.—Total sales of five major appliances increased slightly during 1954 over 1953, thanks to the efforts of the city's two outstanding dealers, figures released recently by the Nashville Electric Service revealed.

Total sales rose from 19,561 units in 1953 to 19,851 in 1954, a gain of about 1%.

The two leading retailers between them, however, registered a sales gain of 28% over 1953. In 1953, they captured 21% of all dealer sales and in 1954 increased that percentage to 26%.

Breaking the total sales down to the individual appliances covered, it was found that clothes dryer sales jumped 86%, freezer sales rose 40%, water heaters went up 2%, and ranges increased 1%. Refrigerators, however, dropped off by 14%.

Of the total unit sales, 14,103 were made by the 98 reporting dealers and the remaining 5,748 were made by contractors, housing projects, plumbers, food plans, and miscellaneous sources.

(Concluded on Page 25, Col. 3)

New Date Set for Philco Anti-Trust Suit Answer

PHILADELPHIA—Philco Corp. has been given a new deadline for answering a civil anti-trust suit filed by the U. S. Department of Justice charging that the company's agreements with its distributors are illegal.

Counsel for the Justice Department's Anti-Trust Div. agreed to extension of the deadline from Feb. 14 to March 2. A stipulation for the extension, signed by attorneys for the government and Philco, was approved by the Federal Court by Judge George A. Welsh.

5 Executives Buy Interest In Lau; Faulkender Pres.

DAYTON—Five present executives of the Lau Blower Co. have purchased a substantial interest in the company from E. B. and Marion E. Lau, founders of the blower and fan manufacturing firm.

Harold W. Faulkender, vice president; Thomas I. Byrd, vice president; Richard L. Perkins, controller; and Charles E. Hubbard and Joseph L. Lair, together with a group of private investors, are the purchasers. Each official has been associated with the company in an executive capacity for 15 years or longer.

Faulkender was elected president, Byrd executive vice president, Perkins secretary and assistant treasurer, Hubbard treasurer, and Lair assistant secretary and legal counsel.

In making the announcement, Faulkender emphasized that the new management will continue present policies developed during the life of the company. Lau is retiring from active participation in the business but continues to maintain a financial interest. He

Republic Heater Buys Odin Stove Mfg. Co.

ERIE, Pa.—Odin Stove Mfg. Co. here has been sold to Republic Heater Corp., Los Angeles, by Dearborn Stove Co., Dallas, the parent organization, it was reported recently.

The transaction, which calls for a transfer of common stock of the companies, was said to involve more than \$1,000,000.

Cooling May Become Hot Issue In Fight For Ward Control

CHICAGO — Air conditioning may play a role in the fight for the control of Montgomery Ward & Co. between the present group in control headed by Sewell L. Avery, and the faction headed by Louis Wolfson which is trying to oust Avery.

The way things are going now, it seems likely that more Ward stores will be air conditioned in the future.

One of the Wolfson faction's principal charges pointing to the failure of the Avery management to "keep up" through store additions and renovations, is the fact that even in the south the Ward stores aren't air conditioned. Wolfson claims that only about a dozen of the 568 stores in the retail chain have air conditioning.

The present management has been making some moves recently towards a store renovation and remodeling program, and it is understood that this will include the installation of air conditioning for a greater number of stores.

UsAirco Announces Corrosion-Proof Window Cooler

MINNEAPOLIS — What is claimed to be the first window-type room air conditioner to feature completely corrosion-proof construction is announced for 1955 by the United States Air Conditioning Corp. here.

The company, which last year introduced an all-Fiberglas room cooler, has added an aluminum base pan and other structural parts of aluminum to provide the only all rustproof equipment now on the market.

David E. Feinberg, UsAirco president, reports that the 1955 line is now in production and that prices on all units have been reduced from \$10 to \$40 below 1954 levels.

The equipment will be produced in 10 models of ½, ¾, and 1-ton cooling capacities. In addition to units featuring electric strip heating and reverse cycle heat pump operation, the company will also offer low-cost "Standard" models, designed especially for the institutional user.

The new Fiberglas and aluminum models.

(Concluded on Page 4, Col. 3)

Top Court OK's Warranty Costs As Deductible

Could Mean Big Refunds To Mfrs. With 5-Yr. Warranty; Tax Figures in Price Base

WASHINGTON, D. C.—The U. S. Supreme Court, by refusing to review a U. S. Court of Claims decision, has in effect upheld that court's ruling that a manufacturer's expenses for fulfilling a warranty are deductible from excise tax payments.

The lower court's ruling was appealed to the Supreme Court by the U. S. attorneys, who said that the decision might force the Treasury department to make excise tax refunds of millions of dollars. Failure by the highest tribunal to review the case means that the ruling is upheld, for the time being. Because of the amount of money involved, the government may make some further moves to try to upset the decision.

The Claims Court decision means a \$240,000 excise tax refund for Frigidaire Div. of General Motors. This refund is based on the company's expenses in fulfilling five-year warranties on refrigerators it sold between 1937 and 1941. The amount represents something in excess of 2% of the \$10.5 in refrigerator excise taxes paid on Frigidaire household refrigerator units during that period.

The Court of Claims based the (Concluded on Back Page, Col. 5)

Project Installs Air Purifiers as Standard Equipment In Homes

CHICAGO—Ultra-violet air purification units for the destruction of germs and the elimination of odors is being installed in the new 300-home Northfield Woods project in nearby Glenview, it was announced here recently.

"So far as we know, this is the first major housing project ever to supply its homes with an electrical air purifier as standard equipment," Dr. S. Isenberg, president of Sampson Chemical & Pigment Corp., stated.

His firm makes the "Sun-Lite-Aire Purifier" that uses a Westinghouse "Sterilamp" ultra-violet lamp to destroy germs and control odors. The unit can be installed in an air conditioning duct, in the duct of a forced air or gravity-type heating system, or in the cold air return of any furnace.

Recommended installation is in the return air plenum ahead of the filters. In this position, the filter is constantly being irradiated which helps destroy airborne bacteria on the filter face, Dr. Isenberg claims.

The installer need only cut a 2½ in. square hole in the side of the duct and insert the purifier (Concluded on Back Page, Col. 1)

BEHIND PAGE ONE

The Miami Story
Simple Forms, Procedure Keep Service Firm
Operating Smoothly from Four Locations

Field Servicing Domestic Refrigerators
Do Servicemen Prefer To Replace
Complete Systems or Just Components?

There's Economy In "High-Paid" Salesmen
Commercial Firm Hires "Sales Engineers"
And Relieves Them of Minor Details

How To Balance Refrigeration Systems (9)
Selecting Proper Flow Control Devices

Odin Stove Mfg. Co.
Development of New Stove Models, Heat Control

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& AIR CONDITIONING
EQUIPMENT



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TUBE CORPORATION**

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Antioch, Calif. Site Selected for New 'Freon' Plant

WILMINGTON, Del. — Selection of a plant site near Antioch, Calif., for the manufacture of "Freon" refrigerants and tetraethyl lead was announced recently by du Pont company.

Options are being exercised on a tract of about 500 acres approximately two miles east of Antioch on the San Joaquin River. The Antioch site is one of several California locations that have been under consideration since last summer.

At that time, the company announced that it was contemplating the construction of tetraethyl lead facilities to meet the increasing requirements of the West Coast petroleum industry which uses tetraethyl lead to raise the octane rating of gasoline.

It also said that the rapid expansion of the air conditioning, refrigeration, and aerosol industries on the west coast made it desirable to have facilities for the manufacture of "Freon" fluorinated hydrocarbons close to the point of use.

The Antioch site is approximately 42 air-miles northeast of San Francisco.

Construction will get under way this summer, with about 500 to be employed at peak of construction.

John Haines Elected President of ASHAE

PHILADELPHIA—John E. Haines, vice president of Minneapolis-Honeywell Regulator Co. was elected president of the American Society of Heating & Air Conditioning Engineers at its recent annual convention.



J. E. Haines

Haines, who heads Honeywell's commercial controls division, has been a member of the society since 1940 and long has been prominent in its activities. Last year he served as first vice president, was a member of the society's council, and a member of other committees. He is a past president of the group's Minnesota chapter.

An engineering graduate of Purdue university in 1925, Haines joined Honeywell as a sales engineer in 1929. He was made assistant manager of the commercial division in 1934 and served as a manager of the company's Chicago factory from 1937 to 1940 when he returned to the home office as head of the firm's commercial division.

He was elected vice president of the company in 1945, according to the announcement.

Thor Closing Main Plant; Others To Continue Output

CHICAGO—Although Thor Corp. will shut down its main manufacturing plant in Cicero, Ill., March 31, there are no plans to liquidate Thor or to go out of the laundry appliance business, according to a spokesman for Arnold H. Maremont, chairman of the board.

Another company spokesman said the Cicero plant may be sold and the money used to implement reorganization of the firm. In the first nine months of 1954, Thor lost \$1,263,936. In 1953 it earned \$446,045.

Maremont headed a group of stockholders who recently gained control of Thor. He and three other directors were elected to the board. Last December, Maremont said he and Victor Nemeroff, president of H. & B. American Machine Co., and David Bright, president of Electric Mfg. Co., had acquired a controlling interest in the company.

That production at the Cicero plant will be "suspended" was revealed in a letter to the company's suppliers. R. W. Wiley, director of purchases, said in the letter that it hasn't been decided yet whether the closing will be permanent.

The spokesman for Maremont said the Thor plant at Bloomington, Ill., and plants of Thor subsidiaries in Chicago, Joliet, Ill., and Toronto will remain in operation.

There was talk that all Thor facilities except the Bloomington plant were up for sale, and other reports that the company might merge with another firm in a stock-exchange deal. The spokesman declined to comment on these rumors.

Maremont stated earlier that he intends to expand the company's position in the appliance field.

Hussmann Civilian Sales Set Record; '55 Seen Better

ST. LOUIS—Prospects this year for civilian sales of commercial refrigeration units are more favorable than they seemed early in 1954. W. B. McMillan, president of Hussmann Refrigerator Co., told shareholders in the annual report.

"The planned modernization and expansion programs of retail food store operations throughout the United States and Canada appear to be larger than a year ago," he said.

Reporting that Hussmann increased its percentage of industry volume last year, McMillan said new orders received for the year to date are "in excess of the similar period of 1954."

Net sales of the company in 1954 totaled \$28,438,528, a drop of 5.3% compared with record sales of \$30,027,498 in the previous year. Net profit was equal to \$2.64 a common share, against \$2.68 a share in 1953, adjusted to reflect a 50% stock dividend paid in 1954.

Sales of regular civilian refrigerator and refrigeration products were the largest in the history of the company, McMillan said. But, he added, total sales of defense work in the U. S. and Canada declined approximately \$5 million compared with 1953.

McMillan described the company's aircraft division as "very unsatisfactory" last year. He said it incurred a substantial loss, "due primarily to the holding up of production of a large contract obtained early in 1954, which was cancelled late in the year without production." The contract was cancelled because of unsolved design problems of the prime contractor, he stated.

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Warren Edwards Starts Own Wholesaling Firm

UNIONDALE L. I., N. Y.—Warren Edwards, formerly manager of the New York Refrigeration Supply Co. at Long Island City, has established his own refrigeration and air conditioning wholesaling business at 1194 Fulton Ave. here.

The firm, of which Edwards is sole owner, is called the Long Island Refrigeration Supply Co. Leading lines include Lehigh condensing units and Betz blower coils. Edwards said he contemplates adding a complete line of heating supplies and air conditioning equipment for summer and winter air conditioning.

Edwards has been in the refrigeration wholesaling business since 1940. He has worked with Melchior, Armstrong, Dessau Co., Inc. and with the New York City parts department of Nash-Kelvinator Corp. He opened his own business last October.

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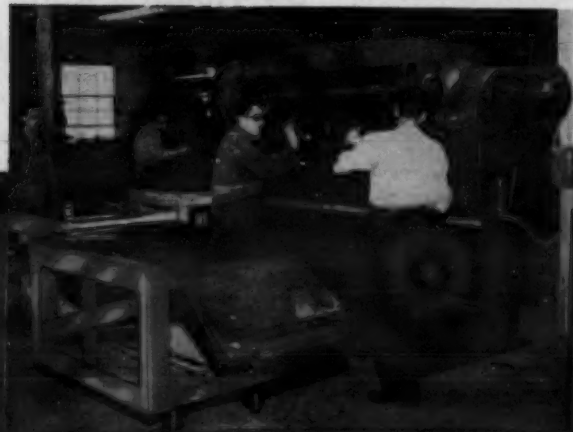
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Off the assembly line for 1955 will come the most outstanding line of cabinets, ever to hit the industry!

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The overwhelming superiority of Evans' cabinets is the result of many years of experience in the development of commercial refrigeration cabinets... a record few can match today.

The dramatic story of Evans' success is vividly expressed by this dynamic panorama of progress.

We are proud that you, America's leading refrigeration dealers, look to Evans as your foremost source for cabinets, recognize Evans Manufacturing Corporation as the industry's standard of comparison.

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Packed with profit-making
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Amana Room Unit Merchandising Program Revealed at 3 Distributor Meetings

CEDAR RAPIDS, Iowa—Amana Refrigeration, Inc., "recognizing that the specialty selling appliance and refrigeration dealer holds the key to volume room air conditioner sales," has introduced an extensive 1955 air conditioner merchandising and promotional program.

The program was presented here to Amana distributors at the first of a series of three regional sales meetings on room air conditioners. Other meetings were held in Dallas and Atlanta.

On the dealer-distributor level, the new merchandising program includes special display offers, a "Comfort Calculator," trade magazine advertising, a new finance plan, and direct mail campaigns to present and future dealers.

The firm's seven-point consumer advertising drive was launched Feb. 19 by Laraine Day during the nationwide telecast of the Michigan-Minnesota basketball game on the CBS-TV network. Room air conditioner commercials will be presented during all subsequent Big Ten basketball telecasts.

In an effort to capitalize on the potential acceptance for its room air conditioners among present owners of its freezers, the 1955 conditioner line will be announced to all Amana freezer owners in a

special mailing beginning March 1.

In addition, a cooperative advertising budget has been established. Plans also call for special regional promotions.

To launch a dealer in the room air conditioner selling business with his first units, a "starter" promotion kit with more than 350 promotion pieces, point-of-sale posters, and other sales aids has been made available.

To promote adequate display of Amana units in dealers' stores, the company has introduced a special display offer. With the purchase of his first year-round model, the dealer receives at no cost the five-color, life-size Scotch girl display, formerly sold at \$15, as well as a new air conditioner banner, valued at \$4.

Edward W. Lyon, manager of room air conditioner sales, introduced a new sales aid, the "Comfort Calculator." This slide-rule-like device simplifies the job of determining the exact size unit needed to effectively condition any room in home or office.

"Fast and easy to operate, the Comfort Calculator correlates the size of the area to be conditioned, the location of the room in relation to the sun, and the number of persons usually in the room," the company explained.



UsAirco's rustproof air conditioner.

UsAirco--

(Concluded from Page 1, Col. 4) num construction provides structural strength, lighter weight, superior sound and thermal insulation, and eliminates the possibility of scuffing, denting, or formation of rust, Feinberg said.

The inside cabinet, in a light neutral color, extends less than 2 in. into most rooms.

The control panel for the 1955 "usAIRconditioner" is located beneath a hinged access panel on the front of the unit. Deluxe models include pushbutton control which provides six operating positions: high and low speed ventilation, instantaneous high-speed cooling, whisper-quiet night cooling, heating, and off.

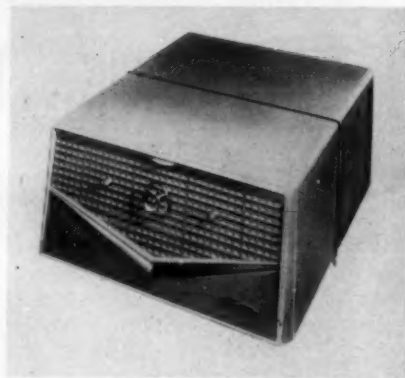
These models also have automatic thermostat and fresh air and exhaust controls. The Standard models feature pushbutton controls



AIR CONDITIONERS

Remington '55 Models

REMINGTON's new "Miracle" Console air conditioner offers what the company refers to as a new concept in "personal air conditioners." The series features flush with the building, flush with the window mounting. It adjusts up or down, in or out for any installation need. It requires no ducts, pipes, or drain connections.



THE NEW Remington Custom series with three basic window conditioner models feature Airflo Fresh'ner to banish odors. Complete details on the Remington line of air conditioners appeared in the Jan. 24 issue of the NEWS.

for ventilation and instantaneous high-speed cooling.

List prices for the deluxe equipment, featuring electric strip heating, have been set at \$379.95 for the 3/4-ton units and \$399.95 for 1-ton. Heat pump models are \$15 higher. The Standard model, in the 1/2-ton size, is priced at \$269.95. A new and simplified installation kit greatly reduces installation time and cost.

UsAirco equipment is covered by a one-year warranty on the complete unit and an additional four-year warranty on the hermetic compressor assembly. The company pays fixed labor charges for service work.

McGraw Completes Lonergan Purchase

CHICAGO—Purchase of the assets of Lonergan Mfg. Co. in Albion, Mich., has been completed by McGraw Electric Co., the latter firm announced recently.

Lonergan is now being operated as a McGraw Electric division under S. J. Lonergan, Sr., founder, it was stated.

Distribution of the additional shares of common stock pursuant to the stock split, as authorized by the board of directors last November, was made recently and the stock is now being traded on the New York Stock Exchange on the new basis.

'54 Houston Room Unit Sales Nearly Double

HOUSTON — Room air conditioner sales in the Houston area during 1954 nearly doubled those of 1953, the Houston Lighting and Power Co. announced recently.

Area distributors, jobbers, and other sales agencies having factory connections delivered to their franchised dealers or sold direct 48,188 room units from 1/2 to 1 1/2 hp. during 1954 as compared with 28,953 in 1953.

Sales of other appliances maintained a high level during the year, though refrigerator and freezer sales were down somewhat.

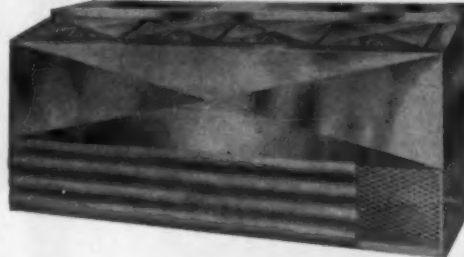
Comparative figures for 1953 and 1954 were as follows:

Appliance	1953	1954
Room Air Conditioner	28,953	48,188
Refrigerator	29,284	27,767
Freezer	10,659	7,327
Clothes Washer Auto.	21,194	24,043
Clothes Dryer	2,454	3,467
Dishwasher	2,460	2,804
Disposal Unit	1,460	2,117
Range (free standing)		2,468
(built-in)	2,626	810

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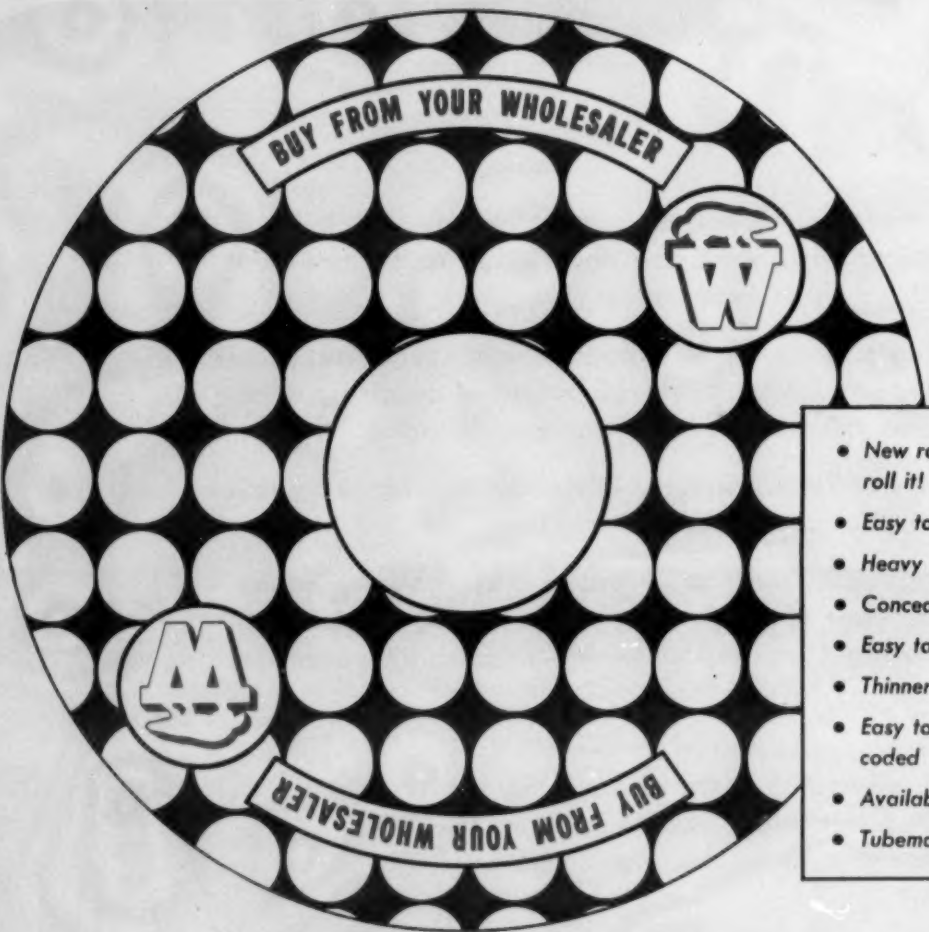
National Manufacturer of complete line of residential Air Conditioning and Warm Air Heating Equipment requires experienced sales engineer for each of the following areas: Mid-West, South-West, and Pacific Coast.

Must be capable of assuming responsibilities of regional sales manager. Duties consist of servicing and expanding our well-established National Distribution System.

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- New round carton—just roll it!
- Easy to carry
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- Thinner
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Here's another red-hot first for Wolverine—a roll of tube that rolls!

That's right! Wolverine has developed a new round carton that lets you roll copper water tube, refrigeration tube, or automotive tube—like a hoop—to storage, truck, or job site. It's easy to carry—there's a hole in the middle of the carton so that you can slip it over your arm, or use it as a reel. The new carton is made of husky corrugated board and the concealed core protects the tubing from damage due to dropping or other abuse.

Easy-to-read identifying symbols are spotted around the outer edge of the carton so that they can be read from any angle. To speed up identification, symbols are color coded as another convenience.

There are plenty of other benefits, too. The carton is thinner, lets you store more tubing in less space. It's easy to open—just a tug on the gummed perimeter tape is all that's needed. And best of all, the carton contains the same high quality Wolverine tube you're so used to using. Wolverine Tube, 1413 Central Avenue, Detroit 9, Michigan.



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RACCA Makes Plans For Trade Practice Conference In April

PHILADELPHIA—As a result of a meeting here between the board of directors of the Refrigeration & Air Conditioning Contractors Association and Federal Trade Commission, Attorney Paul Butz, RACCA's standards committee will proceed to make necessary arrangements for a trade practice conference in Chicago in April.

RACCA is interested in working towards the establishment of rules of conduct within the contracting industry to the end that the air conditioning and refrigeration business and public gain protection from unfair trade practices, explained Dudley M. Cawthon, publicity chairman for the association. The standards committee has also been given the task of reviewing existing standards and proposing necessary amendments for consideration at the next board meeting, which is scheduled for Chicago sometime in April.

The RACCA board recognizes that the rapid expansion of the industry may require a revision of RACCA standards to widen their coverage especially in the residential and industrial fields, Cawthon said.

Robinson Gets Carrier Residential Post

SYRACUSE, N. Y.—George F. Robinson, former manager of Carrier Corp.'s St. Louis unitary equipment branch sales office, has been named assistant sales manager, residential air conditioning, with headquarters here, it was announced by John M. Bickel, vice president, Unitary Equipment Div. Robinson, who was particularly active in the sale of home air conditioning equipment during the seven years he was in St. Louis, will assist residential air conditioning sales manager William A. Lake.

An electrical engineering graduate of the University of Cincinnati Robinson joined Carrier upon completion of his studies in 1945. Graduating from Carrier's engineering training school, he performed engineering assignments in Cleveland and Chicago before going to St. Louis.

Mission Rancho Homes To Have Room Units In Living Rooms

SACRAMENTO, Calif.—Air conditioned living rooms for homes in the \$10,000 bracket are provided as standard equipment in the new Mission Rancho homes being built here by Artz-Carlson-Ellis.

Each of the ranch-style three-bedroom homes in the development is equipped with a Servel ¾-hp. room air conditioner built into the living room wall. One hundred units have been delivered.

The air conditioners are being installed by the American Sheet Metal Co. of Sacramento.

Other features in the Mission Rancho homes, which are priced from \$9,995 to \$10,250, include community all-channel TV antennas, thermostatically controlled heating, fireplaces, copper plumbing, picture windows, and generous insulation for the Sacramento Valley area.

Register New Sales Head for Connor Residential Diffusers

NEW YORK CITY—A. L. Register, formerly in the Chicago office of Connor Engineering Corp., has been named sales manager of the Residential Air Diffuser Div., the company has announced.

Supermarket Draws Customers with Cool Shopping Center Next Door

HOUSTON—One way to bring customers to a supermarket is to build a shopping center next door and make it attractive by air conditioning it.

That is what Weingarten's, Inc., east Texas supermarket chain, proposes to do to increase business for eight of its stores. The planning on the first center, next to a supermarket near the downtown Houston area, is already under way and two firms have already leased space.

Two more such centers are planned for stores in Houston. The others are planned next to stores in Pasadena (Texas), Galveston, Orange, Port Arthur, and Lake Charles, La.

The other Weingarten stores are already situated in community shopping centers.

Acme Bulletin Tells How To Estimate Water Costs With or Without Tower

JACKSON, Mich.—A practical, easy-to-use formula for estimating the water costs that occur when the discharge water from an air conditioning or refrigeration system is dumped down the drain is a feature of Catalog No. 700, issued recently by Acme Industries, Inc.

A second formula shows operating costs with an Acme cooling tower conserving up to 97% of the water. A typical example, using the two formulae, shows savings of almost \$1,500 for a 40-ton system operating 1,200 hours in a typical locality where combined sewage and water rates amount to 30 cents per 100 cu. ft.

The new 8-page catalog illustrates and explains the construction and operation of Acme towers.

Refrigerant Supplies Seen Ample For All Needs by End of 1955

NEW YORK CITY—By the end of 1955 productive capacity for fluorinated hydrocarbon refrigerants, aerosol propellants, and related chemicals in this country should be sufficiently large to "meet all of the industry's needs for the foreseeable future."

This forecast was made recently by General Chemical Div., Allied Chemical & Dye Corp., as the company reported completion of several major expansions at its Baton Rouge (La.) Works, production center for its "Genetron" line of organic fluorine compounds.

In the past 12 months, the company has doubled its capacity for Genetrons 11 and 12 (trichloromonofluoromethane and dichlorodifluoromethane) which are the two most widely used refrigerants and aerosol propellants.

During the same period, General added large new facilities for commercial production of two other refrigerants, monochlorodifluoromethane (Genetron 141), trichlorotrifluoroethane (Genetron 226), and two aerosol propellants—dichlorotetrafluoroethane (Genetron 320) and ethylidene fluoride (Genetron 100).

By midyear, General expects to have an additional new Genetron plant in operation at Danville, Ill. to serve midwest producers of aerosols and air conditioning and refrigeration equipment.

New Firm for Nashville

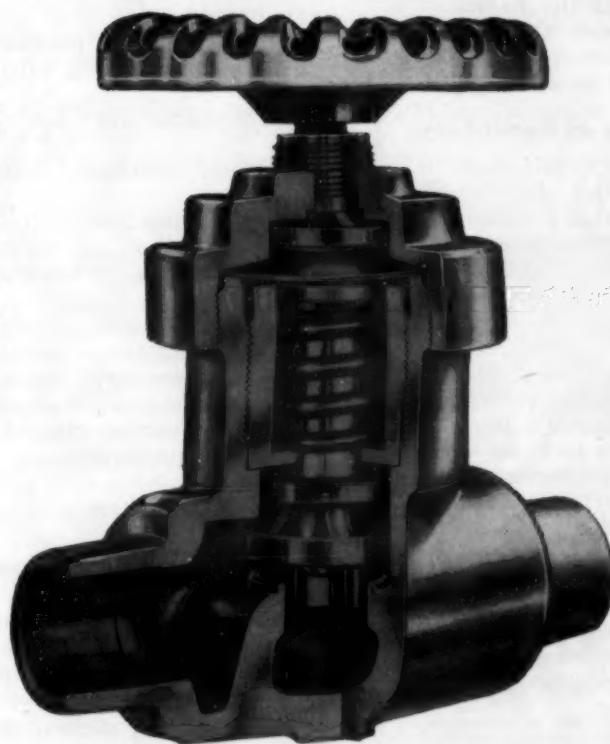
NASHVILLE, Tenn.—Nashville Refrigeration & Service Co. has opened for business at 1514 Hayes St.

KNOW THE INSIDE STORY

Do you always know the "inside story" of the refrigeration valves that you purchase? Are they made of top quality forgings? Do they contain highest grade materials assembled by expert craftsmen and machinists? You can be certain of these and other construction features if you specify the Kerotest line of refrigeration valves and fittings. Write today for our Condensed Catalog.



Kerotest R24 Packless LINE VALVE



Kerotest 520 Packless GLOBE VALVE



Kerotest R10 Packed GLOBE VALVE

KEROTEST

MANUFACTURING COMPANY

2523 LIBERTY AVE. • PITTSBURGH 22, PA.

The MIAMI STORY: Simple Forms and Procedures Help Keep Big Service Operation Working Smoothly from Four Separate Locations

By George M. Hanning

MIAMI, Fla.—With some 300 service maintenance contracts on its books, and its 25 servicemen working out of four separate locations rather than from one central office, Hill York Service Corp. here has developed a series of simple forms and procedures to control operations.

L. L. Grant, service manager, declared that 90% of the firm's business, other than warranty service for Hill York Corp., York distributor in the Miami area, is in five-year maintenance contracts.

Have Specific Territories

Hill York's servicemen are assigned specific territories, Grant explained, and are held responsible for the maintenance of all equipment in that territory. In addition, the serviceman has the right to sell additional service maintenance contracts in his territory, receiving a commission on the contracts he sells.

The serviceman carries a loose-leaf notebook in which a "maintenance inspector's job record sheet" for each job is kept. These are arranged by date, so that the serviceman can tell each day what jobs he is scheduled to inspect.

The sheet gives him the basic data about the job, including number of inspections to be made, equipment to be inspected and maintained, a record of inspections already made, and the names of authorized personnel at the customer's establishment who can sign for the work done.

Duplicates Serve as Reminders

A duplicate of this sheet is maintained in the dispatcher's office. The dispatcher's copies are also arranged chronologically. With this sheet, he, too, can note inspections made and can remind the serviceman if he has missed a scheduled call.

When making his regular monthly inspection, the serviceman fills out an "Inspector's Report." This is a standard form on which the work to be performed is arranged in an orderly sequence. As he goes through the form and performs the operations required, the serviceman jots down the information asked for on the sheet. When he has worked his way through the sheet, he is certain that he has accomplished all required inspections.

Inspector's Report Is Key To System

The Inspector's Report is a key form in Hill York's record system. Let's look at it in detail.

Across the top are little boxes in which to check whether the report is for a regular inspection, emergency call, or seasonal overhaul, and whether or not it is on a maintenance contract.

Then the serviceman fills in data on customer's name, location, district, date, and contract number.

Then, in this numbered sequence, the serviceman is to perform the operations required and give the information asked:

1. (a) Report to Customer
- (b) Outside dry-bulb temperature
- (c) Outside wet-bulb temperature
2. Condition of cooled spaces: Room or box number
 - (a) Temperature: Dry bulb, wet bulb
 - (b) Coil condition
 - (c) Condition of insulation and door gaskets
3. Check system for leaks
 - (a) Refrigerant leaks, location
 - (b) Water leaks, location
 - (c) Air leaks, location
4. Strap thermostats to evaporator coil outlets
5. Oiling and Cleaning

- (a) Motor bearings oiled
- (b) Compressor belts cleaned
- (c) Compressor body and motors cleaned
- (d) Motor commutators cleaned

- (e) Air-cooled condensers cleaned
- (f) Water-cooled condensers cleaned internally once a year if necessary

6. Compressors

- (a) Compressor serial number

- (b) Suction pressure
- (c) Discharge pressure
- (d) H. P. switch cut in
- (e) H. P. switch cut out
- (f) L. P. switch cut in
- (g) L. P. switch cut out
- (h) Belt tension checked
- (i) Oil filters checked
- (j) Oil gauges checked
- (k) Oil color
- (l) Oil level

- (m) Capacity reduction valves checked

- (n) Automatic by-pass valves checked

- (o) Paint condition

7. Economizer, condenser, or cooling tower

- (a) Air or water on—°F.
- (b) Air or water off—°F.
- (c) Liquid temperature—°F.
- (d) Temperature corresponds to discharge pressure.
- (e) Temperature difference—°F.

- (f) Purged
- (g) Pressure after purging
- (h) Water regulating valves checked

- (i) Circulator operation checked

- (j) Water treatment: Being used

- (k) Water treatment: Checked

- (l) Fan and motor bearings oiled

- (m) Belts cleaned, tension adjusted, and alignments checked

- (n) Water overflow checked

- (o) Spray nozzles: checked

- (p) Spray nozzles: cleaned

- (q) Pans and screens cleaned

- (r) Paint condition

8. Liquid controls

- (a) Thermal valve location: Suction superheat °F.

- (b) Expansion valves adjusted, location

- (c) Expansion valves replaced, location

- (d) Liquid and suction line strainers checked: cleaned if necessary

- (e) Float valve operation checked

9. Air units and dehumidifier

- (a) Fan bearings oiled

- (b) Belts cleaned

- (c) Belt tension adjusted

- (d) Drive alignment checked

- (e) Damper positions checked

- (f) Spray nozzles checked: Maintenance only, clean if necessary

- (g) Dehumidifier overflow checked

- (h) Finned coils cleaned if necessary: Maintenance only

- (i) Strainers cleaned

- (j) Air filters inspected

- (k) Filters cleaned and replaced: Maintenance only

- (l) Paint condition

10. (a) Condition of piping

- (b) Condition of insulation

- (c) Condition of painting

- (d) Condition of wiring:

Starter boxes and controls

11. Recheck of cooled spaces: Room or box number

- (a) Temperature: Dry bulb, wet bulb

- (b) Air distribution adjusted

- (c) Controls adjusted

- (d) Outside dry bulb

- (e) Outside wet bulb

12. Report to the Customer

Immediately below this check

sheet is a space for remarks. At the bottom is space in which to note gallons of oil added, pounds of refrigerant added, number of cleaned filters used, number of new filters used, number of inspection man hours, and inspector's name.

On the reverse side is room for the inspector to list all parts replaced and major repairs made and another box to fill in for emergency calls. The latter asks for the following information:

Reason for call

Found following trouble

Corrective measures taken

The maintenance and service supervisor then fills in the answers to the following questions:

Does nature of this emergency call make it chargeable to the agreement?

If not chargeable to the agreement, how will it be charged? To customer? To guarantee account?

After completing his inspection, the serviceman also fills in a brief report on maintenance inspection for the owner of the equipment. This report merely notifies the owner that his equipment was inspected and serviced as scheduled. It provides space for noting any facts the serviceman feels should be brought to the owner's attention.

At the end of the day, the serv-

One of the keys to a profitable service maintenance contract business is close control over the serviceman's activities. How Hill York Service Corp. maintains such control through the use of brief, but thorough service reports is described here.

This is one of a series of articles on the various phases of the air conditioning and refrigeration business as it is practiced in that glamorous land of sub-tropical sunshine known as Miami. In this series, Assistant Editor George Hanning tells what it is like to do business in air conditioning and refrigeration in a colorful boom town—a mecca alike for tourists, retired people, and young businessmen with their mark to make.

iceman turns in his inspector's report to the main office, where Grant himself checks it over. Grant compares it with previous reports on the same job and notes anything that appears to be unusual.

Then he checks with the serviceman to make sure that the serviceman is aware of these unusual features and has taken steps to correct them.

Information on parts replaced and service work done is noted on a revolving card file kept at the dispatcher's desk. Then the report is filed in its job jacket.

With a complete history of the work done on a particular job at his fingertips, the dispatcher is better able to understand the situation when the owner calls in

for emergency service, Grant believes. The rotary card file also enables him to give a more accurate picture of what is involved in the service call to the serviceman.

Like many other firms, Hill York Service Corp. offers customers around-the-clock emergency service seven days a week. To take care of such calls, Grant has set up a regular duty roster with one man pulling night duty and another acting as stand-by.

The company uses a telephone answering service to handle after-hours calls. The answering service is provided with a copy of the duty roster. The operator is instructed to give all calls to the duty man.

(Concluded on next page)

genetron 12 WHITE LABEL
DICHLORODIFLUOROMETHANE
in cylinders

YES...genetron[®]
ARE COLOR-CODED

genetron...
Super-Dry
Refrigerants

genetron 11
TRICHLOROMONOFUOROMETHANE
ORANGE LABEL
in drums

MATERIAL USED

Fill in the following for Regular Inspections, Seasonal Overhaul, and Emergency Calls.

LIST ALL PARTS REPLACED AND MAJOR REPAIRS MADE**IMPORTANT**

Identify all Compressors & Cond. Units by Serial No. (Do not state "Compressor No. 1 or No. 2" Etc.)
Identify all other equipment by giving Size and/or Model No.—Also give Mfgs. Name.

Quantity	Part Name	Repair Work Done IF NEW PART USED STATE "NEW"	Equipment Identification Give Comp. Ser. No., Unit Size and/or Model No., Etc., of Equipment on which Repair or Replace was made.

EMERGENCY CALLS

FILL IN THE FOLLOWING FOR EMERGENCY CALLS ONLY

Reason For Call:

Found Following Trouble:

Corrective Measures Taken:
(List Any Repairs or Replacements Above)

Maintenance & Service Supervisor to fill in the following:

- Does nature of this emergency call make it chargeable to the agreement?
YES ☐ No ☐ (Check One)
- If not chargeable to the agreement how will it be charged?
To Customer ☐ To Guarantee Acct. ☐ (Check One)

FORM OF THE INFORMATION required on the reverse of the inspector's report. This information provides vital cost data that may affect the profit or loss on a particular job.

Service Forms--

(Concluded from preceding page)

If, however, the duty man happens to be out on a call, she can phone the stand-by. On rare occasions, when both are out on calls, she then can call Grant himself or the office secretary who will assign an additional man to handle the emergency.

Grant believes that service contracts not only benefit the customer by relieving him of all service worries and regularizing his service expense, but they also benefit the refrigeration service and sales organizations.

For the service department, he said, they enable management to hold its organization together the year around, for there is always work for the men to do.

Through preventive maintenance, they cut down on the work load during busy seasons. During slack seasons, they keep the men busy cleaning, painting, and overhauling equipment to put it in first class condition.

For the sales department, this continual watch over customer's equipment makes for a happy and satisfied customer who is not only a prospect for additional or new equipment, but is a booster for the company's products to other prospects, Grant noted.

In this case, Hill York Service Corp. is a separate entity from the sales firm. As such, it is expected to make its own profit. And it does,

MAINTENANCE INSPECTOR'S JOB RECORD SHEET

District or Distributor..... Date.....
Maintenance Inspector.....
Route Name or Number..... Contractor No.....
Name of Customer.....
Address.....
Main, or I-A-O..... Refrig. or A. C.
1. First Inspection To Be Made.....
2. No. of Inspections per Year.....
3. Inspections To Be Made as Follows:

JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

4. Compressor(s) To Be Inspected.

MAKE	MODEL OR SIZE	H. P.	SERIAL NO.

5. Condensing System(s) To Be Inspected.

Model Economizer(s) or Size Condenser(s).....

6. Evaporator Systems To Be Inspected.

Water Cooler(s), Brine Coil(s), Etc.....

7. Air Filters To Be Cleaned (Yes or No).....

8. Cooling Tower To Be Maintained (Yes or No).....

9. Water Treatment (If Necessary) To Be Furnished by District, Distributor, or Customer.....

10. Refrigerant To Be Furnished by District, Distributor, or Customer.....

11. Name of Customer Representative Authorized To Sign Owner's Inspection Report.....

11-A. Name of Alternate Representative.....

Remarks:

MAINTENANCE & SERVICE SUPERVISOR

BOTH THE SERVICEMAN AND THE DISPATCHER keep a copy of this record sheet that tells in complete detail just what is to be done under the service maintenance contract applying to a particular job. The dispatcher uses his copy to remind the serviceman of missed or delayed inspections.

Grant declared. The service firm is definitely a profitable venture.

"The key to a profitable service business," Grant believes, "lies in setting up a service reserve that is adequate not just to cover the cost of estimated repairs but also to cover the cost of maintaining the equipment in first class condition. The service dealers who don't make a profit are those who don't set up a definite reserve for service."

Hill York's service reserve is determined by its own previous experience in maintaining each individual model in the York line. Thus, models that are known to need more attention than others are provided with a correspondingly greater reserve.



"Complete line, the perfect set-up for every need," says Clyde L. Copp (left), Typhoon dealer in Tulsa, shown with one of his customers.

TO GET ON THE MOST PROFITABLE FACTORY-DEALER TEAM IN THE BUSINESS, TIE UP WITH

TYPHOON 505 Carroll St.,
AIR CONDITIONING Brooklyn 15, N. Y.

• COMMERCIAL AIR CONDITIONERS, 1 TO 25 TONS
• RESIDENTIAL YEAR-ROUND UNITS FOR GAS OR OIL
• ROOM AIR CONDITIONERS, 1/2, 3/4, 1 H.P.
• PACKAGED HEAT PUMPS, RESIDENTIAL & COMMERCIAL

genetron 141 GREEN LABEL
MONOCHLORODIFLUOROMETHANE
in cylinders

Super-Dry Refrigerants FOR YOUR CONVENIENCE!

It's always easy to know the contents of "Genetron" refrigerant cylinders or drums. That's because the top of each container is clearly marked with a distinctive color to identify which refrigerant it contains... and the labels are printed in matching colors to provide a double-check for you.

So, don't worry about learning long chemical names or confusing formulae. Just remember this: In refrigerants, the name "Genetron" always identifies General Chemical's great line of "super-dry" refrigerants.

And, the label color code always means:

- WHITE LABEL —DICHLORODIFLUOROMETHANE
- GREEN LABEL —MONOCHLORODIFLUOROMETHANE
- ORANGE LABEL —TRICHLOROMONOFUOROMETHANE

For speed, simplicity, convenience, buy... order... specify "Genetron" Refrigerants by color!

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

Offices: Albany • Atlanta • Baltimore • Birmingham • Boston • Bridgeport • Buffalo
Charlotte • Chicago • Cleveland • Denver • Detroit • Greenville (Miss.) • Houston
Jacksonville • Kalamazoo • Los Angeles • Minneapolis • New York • Philadelphia
Pittsburgh • Providence • San Francisco • Seattle • St. Louis • Yakima (Wash.)
In Wisconsin: General Chemical Company, Inc., Milwaukee

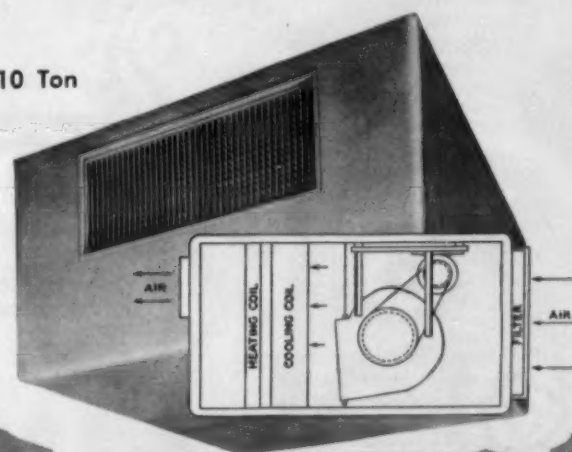
In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver



Allied
Chemical

America's Foremost Producer of Fluorine Chemicals

3 to 10 Ton



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**AIR CONDITIONING UNITS
with MUGGY-AIR CONTROL**

give comfort when others fail!

Another new Kramer achievement. Muggy-Air-Control takes the "chill and dampness" out of cooling on "muggy days" without reheat or dampers.

WRITE FOR BULLETIN NO. AC-238

KRAMER TRENTON CO. • Trenton 5, N. J.

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By **GEORGE F. TAUBENECK**

(Concluded from Page 1, Col. 1)

toes—nothing like a little competition to keep them honest, I always say. But I also have a direct connection with the factory, and sometimes I buy direct—and does that keep everybody honest!

"The discount is 40% with 2% cash discount, all transportation pre-paid. And one of these distributors who especially wants my goodwill usually gives me an extra ten.

"In my dream, I am now in Florida and I have just telephoned back to the store to see how the boys are doing. Well, Psandmann has just beaten all records for the first week in January, and I think I'll stay here another ten days."

Williams then told the dealers:

"You may think this is an odd way to begin a talk on fair trade. . . . But there is a point to it all the same, because the dealer's dream I have reported to you is only an exaggerated version of the fair trade dream once held by a good many dealers and still held, I fear, by some of them. It is a dream which never will come true."



Hey, Giuseppe, Who's Da Little Guy With Chet?

Attached to this Dope is a picture of an estimable industry executive: C. K. Litman of Koch (far right). Brother Litman, in this photo, seems unperturbed while Supreme Court Justice Bill Douglas ignores ex-President Harry Truman.

Explanation follows:

Koch Refrigerators, Inc.
North Kansas City 16, Mo.

Dope:

I noticed where a football team named the Cleveland Browns had played some team from Detroit. I gathered that the Detroit aggregation was a so-called professional team, and that the players were alleged to have been paid performers. Tsk!

In glancing at another newspaper I found a picture of our Mr. Litman, and at his right a gent named William O. Douglas, who is in the judge business, a local at-

torney with money named Harry Jacobs, an interested but unidentified gentleman who is, I understand, unemployed, and a local businessman named Hyman Brand. The unidentified gentleman looks familiar but I can't seem to place him. I thought perhaps you might remember him. From his mien, he looks like he might have once been in the refrigeration business.

And don't throw the Kaycee "A's" up at me come summer.

SAM GLASS

Quick Cracks

Some people hold a conversation as they would a baby—afraid to drop it.—JOHN QUILL

They say that a glamorous movie star's bathroom towels are insinuated:

"Hers," and:

"To Whom It may Concern."

Small Batches Aid Cooling

Prompt and Proper Refrigeration Is Most Dependable Safeguard Against Food Poisoning

PHILADELPHIA—The most dependable safeguard against food poisoning is prompt and proper refrigeration, rather than heat.

So declared Dr. Dorothy L. Hussemann, chairman of the Department of Foods and Nutrition in the University of Wisconsin's School of Home Economics, at the recent 37th annual meeting of the American Dietetic Association.

Dr. Hussemann pointed out that although the deadly poisoning called botulism has been practically eliminated through a public education campaign, other types of food poisoning are still a problem.

Some 10,000 food poisoning cases are reported to the U. S. Public Health Service each year, it was said. Some believe these cases may represent as little as one-tenth of those that actually occur, due to difficulties in keeping track of cases.

Food poisoning caused by bacteria called salmonella and micrococci is of greatest concern today. There is increasing evidence that heat in cooking alone doesn't guarantee the destruction of these bacteria or the toxins they produce.

Blamed for many cases of food

poisoning is the housewife with a small kitchen who tries to prepare for a large dinner party or picnic by storing some items in advance. The big batch of potato or chicken salad was cited as one of the particularly dangerous items of this type.

Dr. Hussemann said recent studies have stressed the importance of "placing large quantities of food in small units for refrigeration if maximum benefit is to accrue."

She explained that in the case of chicken salad, for example, it was found that it took nine hours in a refrigerator for a 100-serving batch in a deep pan to reach a temperature of 50° F., where a 25-serving batch in a shallow bowl took three hours under similar conditions.

"If refrigeration is to be effective," Dr. Hussemann emphasized, "every effort must be made to bring all of the mass of food to 50° or less in the shortest period of time."

Studies have shown that from a bacteriological standpoint, food which is to be stored should be put in the refrigerator within a half hour after being removed from the stove, it was stated.

Freezing Time Depends On Freezing Method

EXPERIMENT, Ga. — Recent tests at the Georgia Experiment Station, made under the direction of Dr. J. G. Woodroof, head of the Food Processing Dept. at the station, show that one method of freezing foods may take eight times as long as another.

Dr. Woodroof said the tests showed that food in 1-lb., brick-shaped cartons placed side by side and flat on a refrigerating surface froze in two hours.

When the cartons were stacked two deep the food took 16 hours, or eight times as long, to freeze.

Other important factors in the quick freezing method were the proximity of the unfrozen food to the refrigerating surface; chilling the food to 41° F. before placing it in the freezer; and limiting the amount of food frozen at one time to the available space next to refrigerating surfaces of the freezer.

One-pound, brick-shaped cartons of unfrozen food placed one layer deep on top of cartons of already-frozen food caused the temperature of the latter to rise about 13°.

Phelan To Head Sales For Victory Metal Mfg.

PLYMOUTH MEETING, Pa.—J. Desmond Phelan has been appointed sales manager for Victory Metal Mfg. Corp.



J. D. Phelan

Prior to coming to Victory, Phelan for 16 years was in charge of the refrigeration division of Nathan-Straus-Duparquet, kitchen equipment supply house. He was also manager of all divisions of the company.

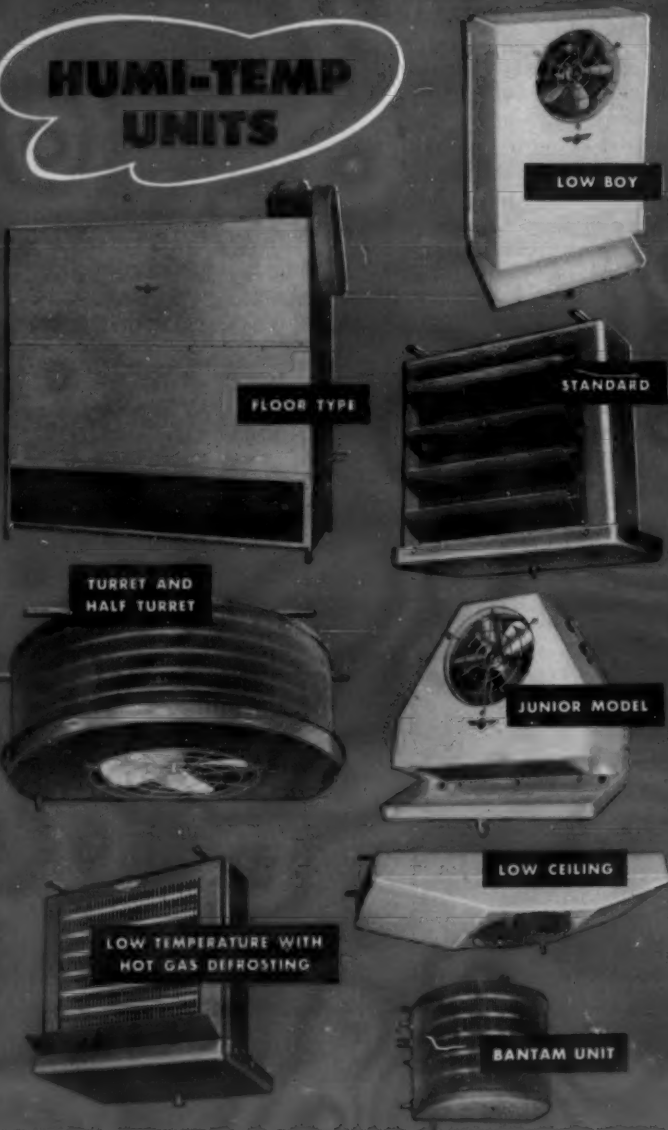
Phelan was manager of the wholesale commercial refrigeration engineering department of Rex Cole, Inc., General Electric distributor, New York City.

He was associated with the first commercial self-contained candy case and the first bone bank.

LARKIN IS THE LINE

Of commercial and industrial refrigeration and air conditioning equipment

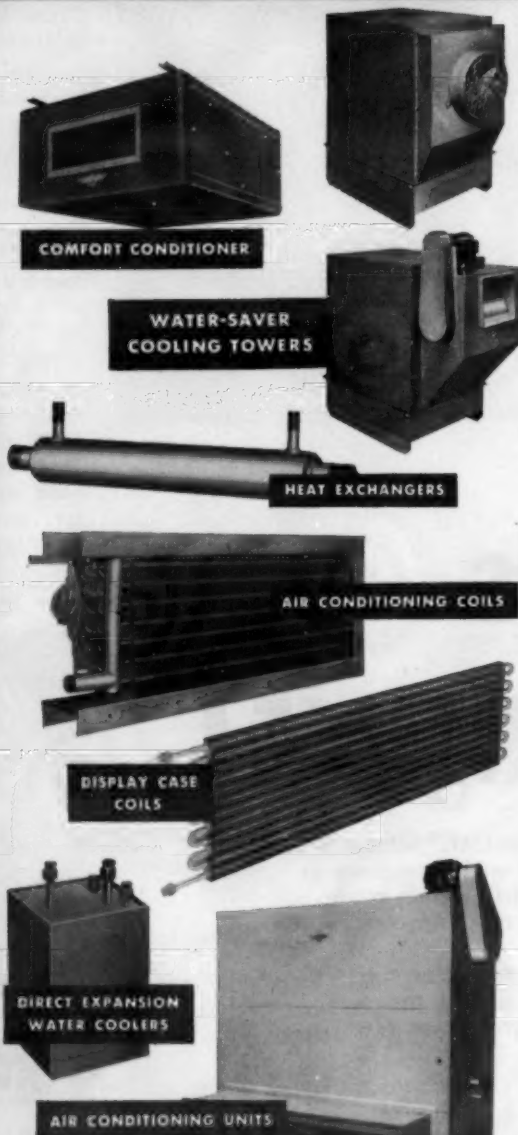
HUMI-TEMP UNITS



Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Evaporative Condensers • Cooling Towers • Air Conditioning Coils • Comfort Conditioners • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans

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SOMETHING NEW... A BETTER COOLER... BETTER CAPACITY... A BETTER PRICE... THE LA CROSSE THRIF'AIRE!

La Crosse sweeps the field in economy, capacity and engineering with the Thrif'Aire and the exclusive "plug-in-panel" refrigeration unit. Panel is easily removed and adaptable to many different uses... a La Crosse exclusive that'll make you money! Advanced design makes a low price possible.

OTHER DEPENDABLE
LA CROSSE PRODUCTS:
WALK-INS... REACH-INS
... KUBE KING... DIRECT
DRAWS.



**THRIF'AIRE
DRY STORAGE BOTTLE COOLER
FEATURES:**

- Gray baked enamel finish on zinc-primed paintgrip galvanized enamel.
- Available electric complete—42" and 62" lengths.
- Fingertip, stainless steel "slide away" doors.

WRITE TODAY - FOR COMPLETE INFORMATION.

LA CROSSE COOLER COMPANY

Factory and Gen'l Offices: 3000 Losey Blvd., So., La Crosse, Wis.
Export Office: 80 Broad St., New York City. Cable Address: Eximport.

Ben-Hur Elects Jackson Vice Pres. In Charge of Sales

MILWAUKEE—Edgar F. Jackson, sales manager of the Ben-Hur Mfg. Co. here, has been elected vice president in charge of sales, Henry H. Uihlein, president, announced recently.



E. F. Jackson

Jackson joined the farm and home freezer manufacturing organization early in 1950 as a district sales manager in San Francisco. At the beginning of 1954, he was named western regional sales manager with headquarters in Milwaukee and in August was advanced to sales manager.

From 1947 until his affiliation with Ben-Hur, Jackson was a partner in the Western Implement Merchandisers, a farm machinery sales concern of Oakland, Calif. Earlier in his career he was associated with United Motors Service in Seattle from 1936 to 1944 as an assistant sales and branch manager.

Deepfreeze Offers Utility Table Kit As Customer Bonus

N. CHICAGO, Ill.—A utility table kit with freezer packaging materials and food blancher, which dealers have used as a premium for customers as well as for store demonstration and display, is being offered by Deepfreeze Home Appliances at a special price.



Comprised of articles with a total retail value of more than \$35, the kit is now available for \$10 to dealers.

Included are the porcelain table with casters and electrical outlet, food blancher, electric sealing iron, and the following freezer packaging materials—polyethylene bags (25 pint-size, 25 quart-size, 10 large, and 1 extra large), 1 roll "Tite Locker Wrap," 1 package pint-size food packages, 1 package quart-size food packages, 1 roll "Mystic" tape, 1 roll aluminum wrap.

The kit may be given with purchases of an appliance or for qualified prospect references. It also is suitable for displaying packaging materials and showing how to use them.

2 Salesmen Set Off Burglar Alarm In Rush to Phone

UPPER DARBY, Pa. — Two salesmen employed by Mort Farr's appliance firm here were so anxious one recent Sunday evening to get into the store and answer telephone calls from prospects following a telecast promoting home freezers that they were mistaken for burglars.

The trouble stemmed from the fact that another employee wasn't given the usual instruction to open the store doors on Sunday. So Arnold Harris, Farr's food-freezer sales manager, and Tony Costello, the other salesman, couldn't get in the store to take calls of consumers who watched Farr's freezer promotion on television.

The continued ringing of telephones inside the store finally proved too much for the aggressive but frustrated salesmen standing outside. They used a paint can to break a window to gain entrance.

However, a burglar alarm was set off when they broke the window, and the two startled salesmen were looking into the barrels of guns held by policemen.

The salesmen's explanation of the situation closed the case as far as the police were concerned.

Deepfreeze Agrees To FTC Requests

WASHINGTON, D. C. — The Deepfreeze Appliance Div., Motor Products Corp., has agreed with the Federal Trade Commission to stop representing that savings in food costs will pay for a "Deepfreeze Home Freezer," the FTC announced recently.

The stipulation agreement discloses that the firm is advertising its freezer with such statements as "The Deepfreeze Home Freezer pays for itself in a surprisingly short time." "Cut Food Bills \$200 a year!" "Amazing but true! You will cut your food bills 10 to 25%."

The terms of the agreement also provide that the company will not represent that any definite monetary amount or definite percentage of food costs can be saved.

Approval of the stipulation conforms to the commission's policy of encouraging law observance.

New Frozen Food Firm Offers Freezer Service

WILMINGTON, Del.—Harold M. McWhorter has opened the De-La-Warr Food Center here, a frozen food store which offers a complete home freezer supply service.

The firm sells either a single unit or in dozen or case lots. No minimum order is required. Special orders will be prepared for barbecues, parties, etc.



HOME & FARM FREEZERS

Freezer Owners Told—

The More It's Used, the Less It Costs

COLUMBUS, Ohio — Families planning for a food freezer have three costs to consider, I. P. Blauser, Ohio State university extension agricultural engineer told homemakers here.

He urged homemakers to compare first cost, packaging costs, and operating costs with costs of locker plant service and trips to the plant. Convenience will also influence plans for home freezer storage, he added.

Freezer hoarding increases costs

per pound, the specialist said. For example, a 360-lb. freezer used for only 360 lbs. of food a year will cost 28 cents a pound.

If the freezer is refilled so that 960 lbs. of food are stored in it, the cost per pound of food drops to 13 cents. These costs cover depreciation, food packaging, and storage.

To insure tasty food from the freezer the supply should be completely used and replenished at least once a year.

Atlanta Dept. Store Enters Food Plan Field

ATLANTA—Davison-Paxon Co., local department store, has entered the freezer-food plan field.

Various plans are offered. For a family of two or three, the company recommends a 12 or 14-cu. ft. freezer and a four-month supply of food including frozen specialties and choice meats. Cost of this plan on a time-payment basis was listed as around \$11 a week.

A 16-cu. ft. freezer and a four-month supply of food is suggested for a family of three or four. This plan reportedly costs as little as \$15.23 weekly. Plans are also offered for larger families, with details to be worked out between the customer and the store.

The company's entrance into this field was announced in a full-page newspaper advertisement.



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Bulk coils, patterns, specified lengths (with or without connectors) . . . whatever your needs, it will pay you to investigate the savings made possible by Bohn's tremendous tubing production. What's more, Bohn's quarter-century of extrusion experience assures you uniform, high quality every shipment.

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LIQUID INDICATOR



NEW FLO INDICATOR FLAP SHOWS ALL FLOW CHANGES

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INCORPORATED

ZELIENOPLE, PA.

Field Servicing Domestic Refrigeration Systems

Which Do Servicemen Prefer: Replace Complete System Or Components Only When Field Servicing Equipment?

"I have certain rather definite opinions in connection with the change of major components in field service and have had many varied experiences over more years than I like to count in the refrigeration service business, but others have as many years and opinions," stated A. E. Manning, speaking at Domestic Refrigerator Engineering Conference at the ASRE national convention.

"It occurred to me that while I was gathering certain vital statistics concerning the professional servicemen I could also ask them their opinion about completely sealed system change as opposed to major component change and many of the related factors that go to make up the whole picture. I included this questionnaire and the response was a surprise to me. Not only did they answer the questions but they added marginal notes for my attention.

"The following then is the 'Serviceman's Viewpoint' expressed in percentage quotients. The comments are my own.

"The first question was, 'Do you favor complete system change?' The answers were 75.8% No.

75% Prefer Changing Components

"I then asked the same question in another way. 'Do you favor changing components in the field?' I certainly did not confuse them for the answer was again 75% Yes.

"My next question was, 'Have you changed components on sealed household systems in the field?' The answer was Yes, 66.6%; No, 33.3%.

"From this it appears that there is a substantial number of professional servicemen who are familiar with the procedure and techniques involved in major component change and are willing to undertake such an operation," Manning said.

"I then asked, 'What percentage of complete system changes that you do requires two men?' The answer was 58.5%.

"This does not coincide with the experience of the operation with which I am connected as we have found this percentage somewhat higher. My thought is that our territory is more than 50% in congested metropolitan areas where refrigerators are located in confined spaces which complicates unit exchange procedure.

When Do You Need Two Men?

"My next question was, 'What portion of major component changes that you do requires two men?' The answer to this was 17.7% which again is low according to our experience and probably for the same reason.

"The next question was, 'Do your customers favor complete unit change over component change in the field?' The answer was Yes, 65%; No, 35%.

"Here the marginal notes were numerous. What they said was, 'After the five-year warranty has expired the users are looking for a less costly repair.' The component change or field repair to the sealed system cuts a major failure cost to half or less than half of the cost of a complete system change.

"I then asked, 'How much do you think you should be paid for a motor compressor assembly change?' The answer was \$24.80. 'How much for an evaporator change?' The answer was \$18.85. 'How much for a condenser change?' The answer was \$18.10.

"I then asked, 'How much do you think you should be paid for a complete sealed system change

Part II of this two-part article discussing replacement of whole hermetic systems or components in the field presents a discussion by A. E. Manning, vice president of Kelmore Service, Inc., of the results of a survey of current viewpoints among servicemen on servicing domestic systems in the field.

Advantages and disadvantages of both policies were debated at the "Domestic Refrigerator Engineering Conference" held during the recent meeting of the American Society of Refrigerating Engineers.

requiring one man?" The answer figures to \$15.96. The next question was, 'How much do you think you should be paid for a complete sealed system change requiring two men?' The answer was \$20.14.

"The next question was, 'Would you and/or your men require special training to make major component changes on sealed systems?' The answers were No, 58.33%; Yes, 41.66%," Manning reported.

How Long Does It Take?

"I followed this with the question, 'How much time do you require for a complete system change using one man?' The answer was 2 hours, 27 minutes. The next was, 'How much time do you require for a complete system change using two men?' The answer was 1 hour, 39 minutes.

"I then asked, 'Can you estimate the time you require for changing, charging, and checking operation of the system in connection with motor compressor change, condenser change, and evaporator change?' The answers were 2 hours 15 minutes, 2 hours 2 minutes, and 2 hours 22 minutes, respectively.

"My thought in connection with these answers is that the cute little slogan, 'One Stop, One Hour Service' is just a slogan and about one hour and 20 minutes off the beam," he commented.

"There is another factor in the changing of either components or complete systems under warranty which has bothered me and that is the time consumed in receiving, shipping, crating, uncrating, and paper work in addition to travel time.

Shipping, Crating Costs

"This is a tremendous cost factor which I thought was often overlooked by most people connected with this business. I found that the service operator hasn't overlooked it even though he hasn't been able to do much about it.

"The question in connection with the above was, 'Give an estimate of the time consumed in receiving, shipping, crating, uncrating, and paper work in addition to travel time.' The answer was 1 hour, 39 minutes.

"I next asked, 'Has the availability of replacement units in your experience been good, fair, or poor?' 44% said Good, 32% said Fair, 24% said Poor.

"In any service operation it is important for the people charged with the actual doing of the work to have descriptive material so that when being called upon to service a new model he does not first have to take it apart to find just what new components have been added and their function. Nothing upsets the owner of a 1955 model super deluxe with special doors more than to have a serviceman call and probe around obviously trying to find out how it is built.

"I asked, 'Has service information in your experience on the equipment you service been readily available?' The answers were Yes, 67.85%; No, 32.15%.

different and it just won't work out.

"Mr. Serviceman has done the best he can with the information available, and he is plenty mad, but he can't do anything about it. Mrs. Jones is mad, too, but she can do something about it and does. That's one of the reasons that refrigerators in the first year get dumped back on the distributor," Manning said.

Are Parts, Information Available?

"The availability of service information and the availability of parts for new production are really two parts of one problem. This is what the serviceman said in answer to the question, 'Are parts for new production available to you before distribution, shortly after distribution or long after distribution?' 8% said Before, 60% said Shortly After, 32% said Long After.

"I say why shouldn't a representative shipment of parts be in the field to coincide with distribution to the user of the refrigerator.

"I have been hearing about refrigerators that are going to be practically service-free for a long time. This usually occurs when the amount of the service reserve and the method of payment is being established.

"I have yet to meet with that refrigerator but every now and then I find that someone, not in the service end of the business, believes it, for we are frequently called to service a refrigerator in the first year on which we have never received payment. We never have any trouble collecting. It was just an oversight. What I wonder is, how many are there that we do not find?

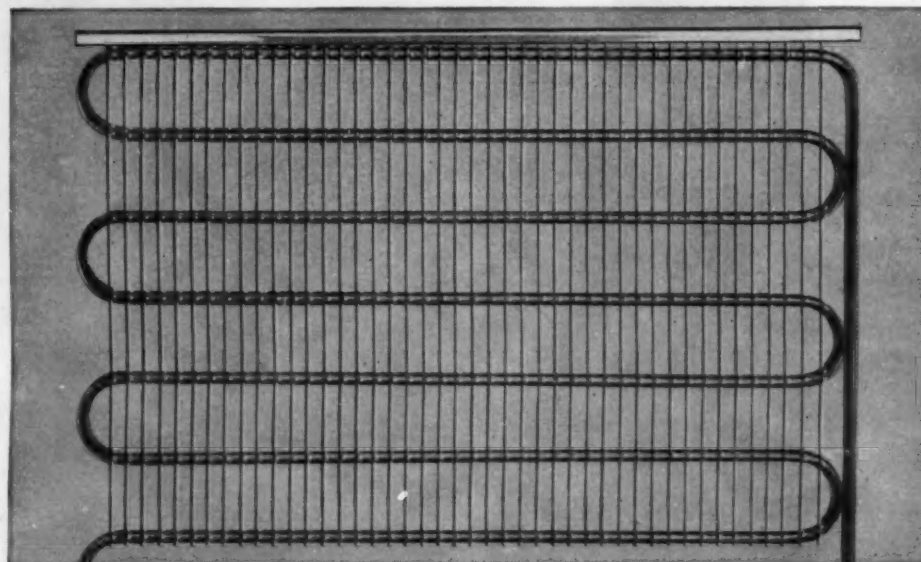
"I asked the question, 'Have you found there are many occasions where refrigerator on which you should receive service reserve are not reported to you?' The answer was Yes, 76.4%," Manning declared.

"The question of just how long a warranty period should be extended on domestic refrigerators has been discussed since 1937. From the answers to my next question it appears that it still isn't settled so far as the serviceman is concerned.

Warranty Preferences

"I asked, 'Do you favor one-year warranty on sealed systems or five-year?' 37% said One Year, 51.3% said Five Year, but these questionnaires were out around election time and I had some Two-Year write-ins which amounted to 3.7%.

"The same question in relation to sealed domestic refrigerator systems where major component changes are permitted brought an even wider difference. 18.1% said Five Years, 77.2% said One Year, (Concluded on next page)



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Bundyweld brings you proved dependability

NATURALLY, you want the cold shelves in your upright freezers to perform faithfully - all the time. You want them to maintain a steady, even cold; to be absolutely leakproof, entirely trouble-free.

That's why you can't go wrong with cold shelves of performance-proved Bundyweld Tubing, the safety standard of the refrigeration industry for over 20 years.

Freezer and refrigerator manufacturers have known for years that they could depend on Bundyweld for compressors, evaporators, condensers, refrigerant lines, other vital tubing parts:

Here's why:

Bundyweld is leakproof by test: thinner-walled yet stronger; has high thermal conductivity; takes easily to standard protective coatings; takes any tubing-fabrication operation in the book.

In addition, skilled Bundy engineers stand ready to help you with troublesome tubing problems; specialize in showing Bundy customers ways to save time, material, money. Call, write, or wire for data or for help with your problem.

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continuously rolled twice around laterally into a tube of uniform thickness, and



passed through a furnace. Copper coating fuses with steel. Result...



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NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead and less chance for any leakage.

SIZES UP TO 3/4" O.D.

What Is a Professional Serviceman?

Manning has separated servicemen into two groups: Amateurs and Professionals. Here is his picture of a "pro" taken from a survey.

"I have often wondered about the professional serviceman. What his average age would be? How many children? How many years in this business? The average number self-employed? This seemed like a good time to find the answer to these and other questions, so I decided to ask. I asked 770 and received over 400 replies. This is what they said.

"His average age is 40.9 years. Exactly 80% are married. Each has an average of 1.6 children. 43.3% rent the residence they occupy. 56.6% own their homes or will after the mortgage is paid off.

"Each has been employed in the refrigeration service business 13.9 years. 66% have attended a technical school. 26.6% have attended college. 50% have attended a refrigeration and air

conditioning trade school. 70% are employed by others.

"63.3% of those replying are members of the Refrigeration Service Engineers Society. 13.3% are members of the American Society of Refrigerating Engineers. 10% are members of service clubs such as Rotary, Optimist, Lions, and others. 36.6% are members of local civic clubs.

"From this he appears to be a good citizen, accepting his responsibilities, trying to keep abreast of this fast-changing business and still looking for that golden opportunity to present itself. Above all he is an individual who does his own thinking.

"This then is a thumbnail sketch of the professional refrigeration serviceman whose viewpoint I shall try to present."

(Concluded from preceding page) and the write-ins this time for Three Years were 4.5%.

"In order to complete the picture insofar as cost and payment in connection with sealed unit changes and major component replacements are concerned, I asked the question, 'Do you receive pay-

ment from the distributor or manufacturer for sealed systems changed in the first year through fifth year or second through fifth year?'

"The answers were: 45% first through fifth year, 55% second through fifth.

"The same question in connec-

tion with major component changes brought 52.9% first through fifth and 47.1% second through fifth.

"In order to gauge these answers in relation to the type of operation which they covered as I did not ask, 'Is your organization located in a city, town, or country area?' The answers were: City, 65.3%; Town, 23%; Country Area, 11.5%.

"My next question was, 'What is the distance from your office to your most remote customer?' The answers ranged from 70 to five miles. The average is 30.3 miles.

Number of Field Men Average Nearly Six

"The average number of professional servicemen employed by each operator is important so I asked, 'How many field servicemen and how many shop men in your organization?' The field service answers ran from 36 to 1 with an average of 5.71 men per organization and the shop men from nine to none with an average of 2.18.

"My last question was, 'Do you sell equipment in addition to service?' 73% said Yes.

"There is a tremendous effort presently being exercised by distributors to rid themselves of doing service and the same thinking is receiving top level attention by manufacturers who have branch operations. The professional service operators are anxious and able to handle this work but must receive adequate compensation which in no event need be in excess of



the reserves which are presently set aside.

"Why manufacturers and distributors desire to withhold a portion of these funds is not understood by the professional service organizations, particularly when the manufacturer and distributor has never been able to find that the present reserves are adequate when they do the work themselves. They also have not been able to convince dealers, consumers, or themselves that they can render satisfactory service.

'Amateurs' Losing Ground

"The day of the amateur is coming to a close and the truck driver-serviceman combination must give way to well-run service organizations authorized to effect these repairs.

"These should consist of large reputable operators in the 60 metropolitan areas of this country and two or three-man organizations in the other areas. I make this statement for three reasons:

"The large organization has the coverage to effect quick repairs in the crowded metropolitan areas and the training facilities to maintain a top-notch organization. In these days of branch store retail operations it has the coverage necessary to blanket a metropolitan trading area. The confusion created by trying to determine which of several organizations should respond to a call for service is eliminated.

"The two or three-man organization is small and usually a partnership. Their best stock in trade is their good reputation. The manufacturer can and must reimburse the service organization for costs

incurred on freight, packing, shipping, and paper work.

"An employee on the large organization payroll costs in excess of \$8,000 per year including car allowance. The small operator needs \$10,000 to \$12,000 a year to stay in business and many are in trouble right now, as I am sure many of you know.

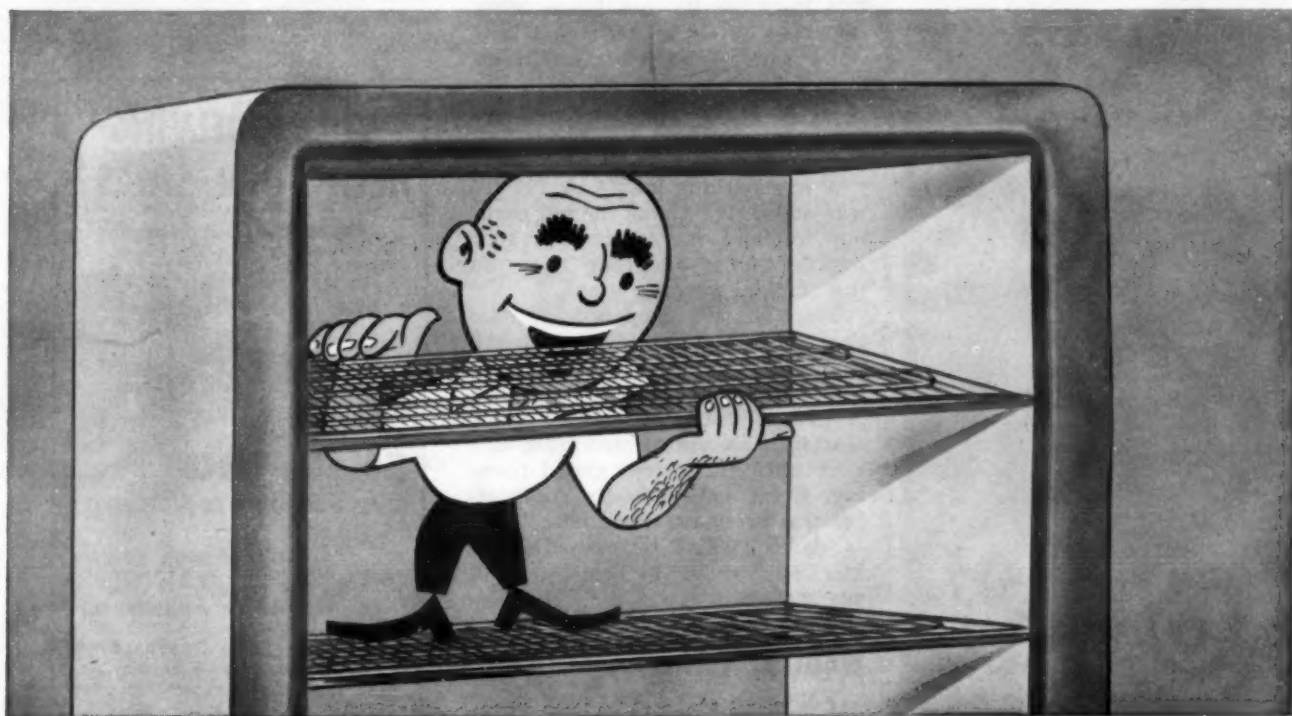
"The service organization has only knowledge, skill, and time to sell and there has never been long profits on these commodities. Every hour must be paid for and each one must be turned to bringing in money," Manning said.

Revamping Due

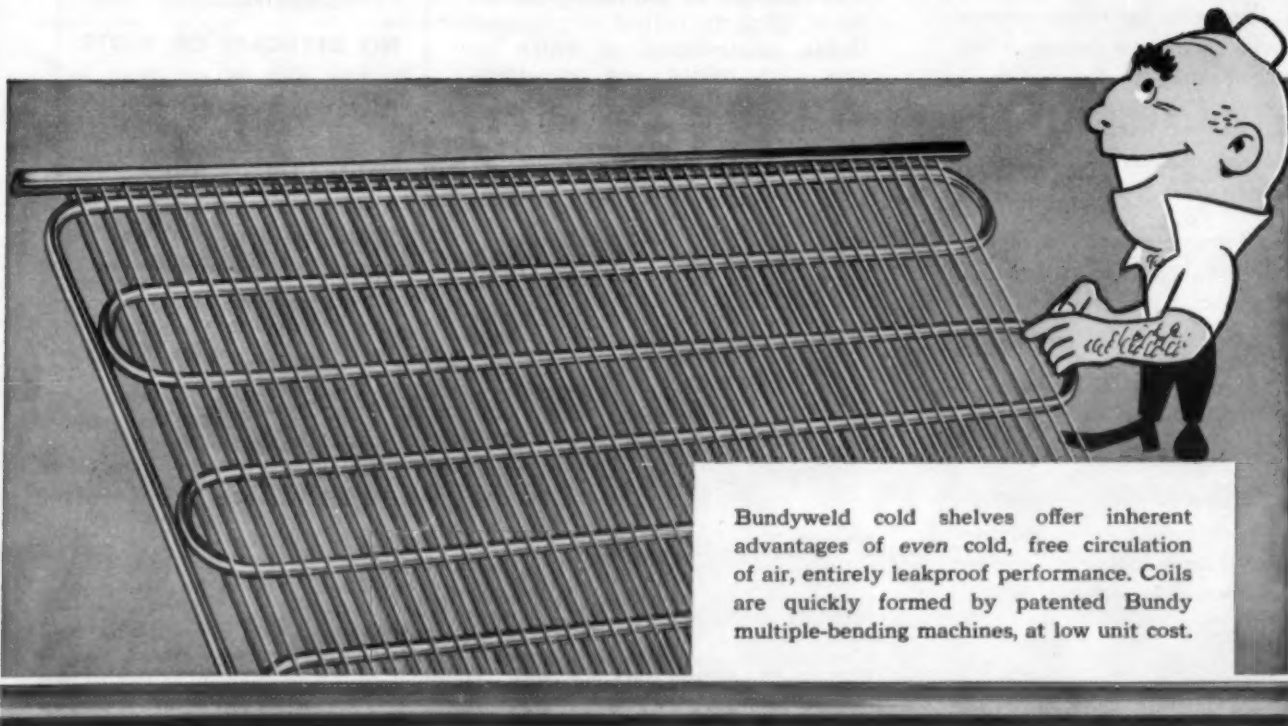
"A complete revamping of parts distribution and service reserve payments is long overdue. It has been a serious handicap in the service operation using the completely sealed system. It could well be a catastrophe in a major component change program.

"Someone must take the initiative in the matter of service reserve payments to service organizations who are not paid when sales are made to dealers and are only paid when the sale to the consumer is registered. I am told that reserves are set aside for all sales to dealers but it must cross some very dry areas for it is a mere trickle by the time it reaches the service organization.

"Now last and by no means least is a matter which should be of concern to all segments of the industry and that is the average age of the individual serviceman. I believe that everyone connected with the industry should join in an effort to attract and hold young men."



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Bundyweld cold shelves offer inherent advantages of even cold, free circulation of air, entirely leakproof performance. Coils are quickly formed by patented Bundy multiple-bending machines, at low unit cost.

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for example:

- H1370—designed for refrigerator truck bodies.
- Plastic sill wiper gasket for cold storage doors.
- Sponge rubber gaskets.
- Plastic door gaskets in color.

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Commercial Refrigeration

Remodeled Hinky-Dinky Supermarket No. 1 May Set Pattern For Other Meat Departments

OMAHA, Neb. — Hinky-Dinky Store No. 1 at 24th St. and St. Mary's Ave. has completed a remodeling and expansion program which gives it the largest frozen food section and most modern refrigerated vending equipment of any of the Hinky-Dinky chain, including 34 stores in Nebraska and Iowa, according to President J. M. Newman.

All the new refrigerated cases are from Tyler Refrigeration Corp.

A 30 by 70-ft. addition at the back of the store, with new basement, houses the self-service meat preparation operation and compressors. In the new basement compressor room is a double bank of units mounted on concrete and steel platforms for easy accessibility.

The new Tyler cases for frozen foods and ice cream extend for 76 ft. adjoining the self-service meat department. There are 56 lineal ft. of self-service meat cases, 56 ft. of refrigerated produce cases,

36 ft. of multi-shelf dairy cases, and a number of new steel tables for display of dry produce.

The new refrigerated cases are of the very latest design, it was pointed out by Bob Newman, head of Hinky-Dinky's engineering and store planning department.

Self-Service Cases Lower For Customer Convenience

Frozen food cases and self-service meat cases are lower than those used heretofore, he explained, for convenience of customers. They have metal rather than glass fronts and are among the first of their kind to be installed in any supermarket in the country.

Tints of maize and forest green were used to decorate the walls. A multi-colored mural depicting farm products against a black background adorns the top of the gleaming white meat department which stretches across the rear wall of the store.

The meat department was moved from the east side of the store to the north (rear) making it possible to install a complete bakery unit near the front of the floor.

The meat department represents a new plan which is expected to serve as a pattern for the future, Newman noted.

First step in remodeling this department was moving and completely turning a 5-ton walk-in cooler. This was one of the few pieces of old equipment retained in the remodeled store. The original cooler was so well made and in such good condition that it was incorporated into the new plans, he said.

The cutting room was then built next to the cooler, with no doors separating the two. A frost-free "Thermopane" window was installed to partition the cutting room from the wrapping area. This arrangement makes it possible for meats to be stored and cut in a room where the temperature is

maintained at an ideal 30 to 32° F. The plan not only keeps the meat at its peak of freshness and flavor, but also keeps it firm and thus easier to handle in cutting.

After it is cut, the meat moves a tray at a time on a conveyor to the adjoining wrapping room. There it is quickly wrapped and returned to the cooler on another conveyor.

Conveyor Eliminates Need For Cold Wrapping Room

Thus, under the new system, meat is never outside the 30-32° range for more than two or three minutes, or just long enough to wrap, weigh, and mark a tray at a time. Because of this arrangement, the wrapping room is not refrigerated beyond the normal air conditioned temperature of the rest of the store.

The meat preparation operation is in full view of customers at all times. Moreover, the women who do the wrapping work in much greater comfort than under the old system.

A new produce cooler and new storage freezer, plus the rearrangement of the heavy refrigeration equipment, have utilized to the fullest the new 30 by 70-ft. fireproof addition, Newman stated.

Water Tower Added

Besides the compressors, the basement under the new addition houses all the other machinery needed to service the big supermarket. A new gas heating unit was installed in this space, also, replacing an old oil burner. A new water tower for the air conditioning system also was added.

While the work was going on, the entire building was given new electric service and wiring.

A new parking lot, 74 by 142 ft., was added. It adjoins the old parking lot and has mercury vapor parking lights matching those on the original parking area.

Store No. 1 was opened 13 years ago as "The Store of Tomorrow." Enough space was acquired at that time to provide for the expansion program just completed. Work started in December, and from that time until the recent grand opening, there was virtually no interference or disruption of business.

About 2,200 ft. of new Bulman steel shelves fill the center part of the store.

Neal S. Templin, Official Of Baker Engineering, Dies

HUNTINGTON PARK, Calif. — Neal S. Templin, 51, official of Baker Engineering Co. here, died recently in a local hospital.

A resident of California for 30 years, Templin helped to organize Baker Engineering, of which he was part owner and secretary-treasurer at the time of his death.

He had served as executive secretary of the Refrigeration & Air Conditioning Contractors Association of Southern California, and was a long-time member of the American Society of Refrigerating Engineers.

Charles M. Heathman Joins Brunner Mfg.

UTICA, N. Y. — Charles M. Heathman, formerly district sales manager of Servel, Inc., has joined Brunner Mfg. Co.,

it was announced recently by A. G. Zumbun, president, and Frank C. Hawk, vice president in charge of sales.

Heathman will work under the general direction of the firm's Chicago office and its district sales manager, T. Jack Lyon. Heathman's territory will include Chicago and adjacent area.

Heathman's newly-created position is aimed at bolstering the company's sales strength in its new "Brunner-Metic" semi-hermetic line of condensing units, according to Hawk.

Heathman attended Evansville college, Evansville, Ind. In 1935, he joined Servel as an assembler.

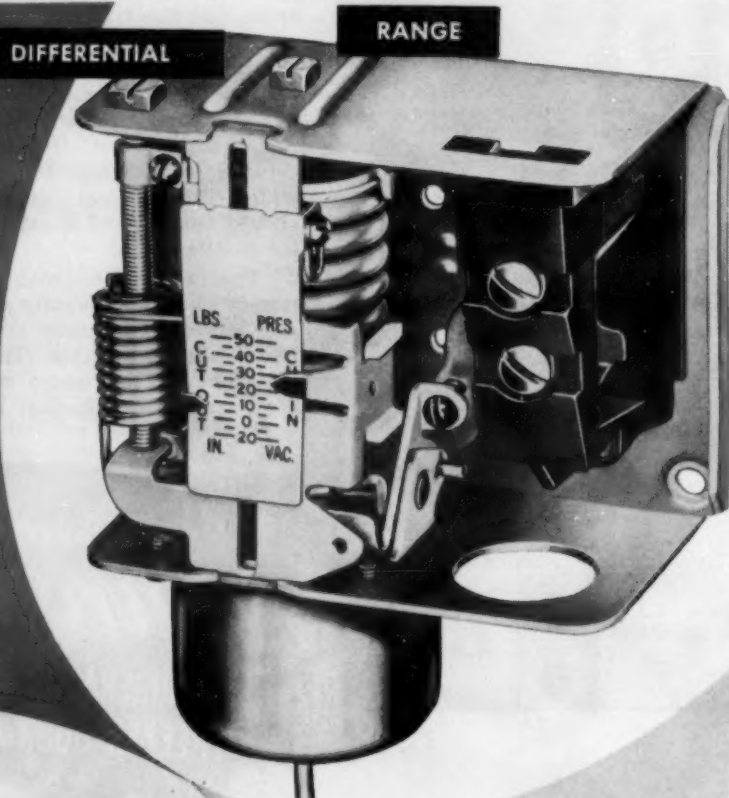
During World War II, he served in the Asiatic-Pacific Theater as a Seabee motor machinist. He returned to Servel following the war and held positions in engineering, production, and service.

Most recently Heathman was district sales manager for first the eastern and southeastern territories and for the last year and a half, the company's west-central territory with offices in Chicago.



C. M. Heathman

PENN Series 270 SINGLE-POLE REFRIGERATION CONTROL



How simple can installation get? Take a look at the three steps detailed at right! And adjusting is simpler still! Because of Penn's direct-reading, calibrated scale indicating cut-in and cut-out settings, there's no time-wasting subtraction or addition. And that's not all — the Penn 270 Single Pole Refrigeration Control combines this simplicity with low cost and top performance. Your wholesaler can tell you all about its money-saving time-saving advantages. Penn Controls, Inc., Goshen, Indiana.



Series 270 available in single or double pole construction — with or without external adjusting knob.

INSTALL IT IN 3 STEPS

ADJUST IT IN 2!

1. Mount the control on compressor unit or any flat surface (universal mounting bracket furnished).
2. Connect flare nut on power element capillary to compressor suction valve.
3. Remove control cover and make two electrical connections (terminals are easy to get at).

1. Turn range screw to raise or lower cut-in setting as required (differential remains constant).
2. Turn differential screw to raise or lower cut-out setting independent of cut-in setting (this narrows or widens differential).

PENN AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

WILL SHELVING HELP YOUR SALES?

"Get the E-Z Story"



"E-Z" SHELVING GIVES PIN-POINT ADJUSTABILITY

"E-Z" BRACKETS & STANDARDS Provides These Advantages

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- (2) Helps Solve Odd Package Sizes. Permits vertical spacing to fraction of inch.
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- (4) Readily Adapted to Precision Tailored Fixtures.

NO KEYHOLES OR SLOTS Brackets slide up and down in Standard groove and lock at any point on Standard.

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DEPT. AC-1, NORTH KANSAS CITY, MO.

SELL extra display FOR EXTRA PROFITS

SCHMIDT Sliding Door Refrigerators meet the requirements of the fast-growing market for displayed cold drinks. Users say these units quickly pay for themselves with extra money from cold drinks and increased sales.

You can make money selling SCHMIDT Sliding Door Refrigerators for bottled drinks and dairy products. Extra large coil for fast cooling; excellent quality, reasonable price: 2, 3 and 4 section models.

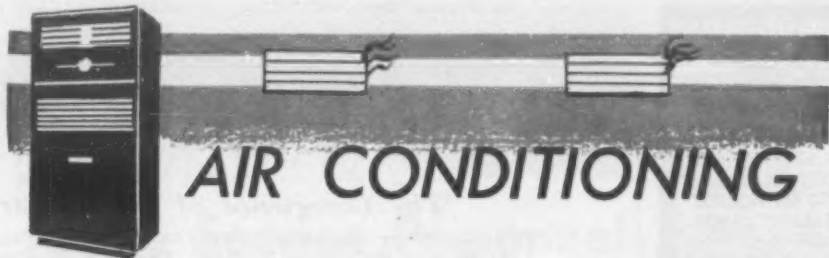
Write for complete details.



THE C. SCHMIDT COMPANY 1712 JOHN STREET • CINCINNATI 14, OHIO



85th Anniversary



Data on Costs and Benefits of Air Conditioning Contained In Booklet for Building Owners, Mgrs.

PHILADELPHIA — Providing a concise yet detailed summary of the many factors involved, an "Air Conditioning Guide for Office Buildings" has been prepared by a joint committee of the Building Owners' and Managers' Association of Philadelphia and the Electrical Association of Philadelphia.

The 24-page booklet represents seven months' work and many meetings of the nine-man joint committee, explains John A. Morrison, managing director of the Electrical Association.

It is copyrighted by the building group.

First section of the booklet is devoted to a general discussion of air conditioning, giving a brief explanation of how it's accomplished, what factors comprise the load, what constitutes "comfort," etc.

Several statements in the first section are worthy of note:

'To Under-Air Condition Is Tragic'

"To over-air condition is uneconomical; to under-air condition is tragic. In the operation of a heating system some heat is always better than no heat. In air conditioning the reverse is true, for no air conditioning is usually better than half enough.

"The windows and doors of an air conditioned structure are closed to retain the cool air within. To close a building with only half enough air conditioning is a stifling experience which results in greater discomfort than would result if the windows and doors were opened and air conditioning turned off.

Rules of Thumb Costs Given on Space Basis

"Like most industries the air conditioning industry has a few rules of thumb which can be very helpful or very harmful depending upon how they are used," the booklet continues.

"We know, for instance, that for the average office building 1-ton of air conditioning equipment will condition approximately 250 sq. ft. of rentable office space, and if we

assume a cost of \$1,000 per ton the answers come easily—250,000 sq. ft. of rentable space = 1,000 tons = \$1,000,000.

"These figures can be useful in luncheon conversations or to help one visualize the magnitude of the problem, but they can be dangerous when used as a basis for final conclusions," the booklet cautions.

"Air conditioning, especially the larger systems, involves the use of numerous pieces of equipment which must be designed and installed to operate as a single unit; and it involves the science of heating, cooling, air handling, automatic control, etc.

Experienced Help Needed To Solve Most Problems

"In older buildings it involves installations which may be very complex and expensive or fairly simple and inexpensive. Obviously, capable and experienced professional assistance is the least expensive shortcut to a satisfactory solution of any air conditioning problem."

The booklet gives special attention to the question: "Does air conditioning reduce cleaning costs?" and "Will the closing of the building and the circulation of filtered air reduce air-borne dust to a point where a substantial reduction in the operation of dusting is possible?"

Cleaning Cost Savings Seen as Slight

On the question about cleaning costs, the booklet says "such savings are problematical. Why? Because the lion's share of cleaning costs is usually unaffected by air conditioning.

"For instance, washroom cleaning and service, corridor cleaning, stair tower cleaning, floor polishing and waxing, rug and carpet cleaning, waste paper disposal, the emptying of ash trays, cleaning of elevator cabs, etc., are unaffected.

"Windows are usually no less costly to clean, and under certain conditions may be more expensive to clean. The cleaning of lighting fixtures should be less frequent

and therefore less costly. Actually, however, this cost is seldom reduced," the booklet declares.

Air conditioning will not "in most cases" reduce the dusting operation, it is said.

"Much of the air-borne dust originates within the building—clothing, paper, tobacco, machine operations, etc. Buildings which maintain a high standard of cleaning normally require the use of the dust cloth each night before a working day, with or without air conditioning.

"There may be some cases where dust from the outside atmosphere is such that the closing of the building during the summer months substantially reduces the cleaning problem with the result that a high degree of building cleanliness is maintained with the same cleaning force.

A detailed comparison of cen-

tral plant systems, self-contained units, and room coolers is given in the booklet, which offers as a summary these "rules of thumb":

"1. If the conditioning problem is an entire building (capacity requirement in excess of approximately 100 tons), the probable, practical, and economical solution is central plant.

"2. If the conditioning problem is a large area or several floors, the probable, practical, and economical solution is self-contained air conditioners.

"3. If the conditioning problem is a single or group of small rooms or offices, the probable, practical, and economical solution is room coolers."

Joint committee which prepared the booklet had five representatives from the Air Conditioning Div. of the Philadelphia Electrical Association:

Ernest L. Sederholm of Peirce-Phelps, Inc.; Edwin H. Dafter, Carrier Corp.; Hugh H. Kirkpatrick, Jr., S. S. Fretz, Jr., Inc.; Wirt S. Scott, Philadelphia Electric Co.; and Robert G. Werden, York Corp.

Chairman of the joint committee was LeRoy E. Varner of Penn Mutual Life Insurance Co. Other representatives from the Building Owners' and Managers' group were James C. Leeper of Richard J. Seltzer, Realtor; Joseph P. Maher, Philadelphia Saving Fund Bldg.; and Fred A. Murray, Federal Reserve Bank of Philadelphia.

Colorado Cafe Installs Cooling For 2 Months of Year

GRANBY, Colo.—Probably the highest package air conditioning job yet installed in this country is planning pleasant cooling for customers of the famous Paynes Cafe, in this high-mountain resort area.

Granby, at near 9,000 ft. altitude, is the closest town to the Grand Lake and Shadow Mountain fishing areas 100 miles west of Denver, where the climate is normally cool enough that heat is required for all months except July and August. When Colorado underwent an unusually onerous summer season for 1954, however, and the temperature in the cafe ranged well over 100° for 60 consecutive days, it was decided to add mechanically-refrigerated air conditioning.

Supplying the cooling for the restaurant, which seats 77, is a 5-ton Frigidaire package unit, mounted in the right front corner of the store. Sold by Snodgrass and Smith, Frigidaire distributor in Denver, the package unit will be required only for a brief period each summer, the Payne management is convinced, feeling that the expense was more than justified, in the cool, pleasant atmosphere which the cafe offers fishermen.

LEADERS RELY ON LAU

FOR SUPERIOR BELT-DRIVEN BLOWER ASSEMBLIES

Lau Series "A" Blower Assembly

MILLIONS ARE IN SERVICE

Put your Problems up to Lau

Our engineering experience is at your disposal. Write for Lau Blower Catalog 707.



Advanced design and quality engineering throughout distinguish this Lau Belt-Driven Blower Assembly—leader in its field. It is far easier to install, lower in final installed cost, superior in performance, and possesses longer trouble-free operating life. Check these major features against your requirements:

One-piece completely adjustable motor mounting that permits any motor location desired. Three-point suspension bearing bracket used for all angles of discharge. Housing base is rigid heavy 16-gauge steel. Entire unit is die-formed. Two-stage centerless ground and burnished shafting with custom-built belt. Perfected Lau steel variable speed pulley allows speed variations up to 30%. Center suspended wheel; positive alignment of wheel to venturi. Lau self-aligning porous bronze sleeve bearings; bearing assembly with long-life lubrication. Embossing of scroll sides reinforces venturi inlet and discharge. Capacity range 350 to 22,000 cfm.

LB-1-55

THE LAU BLOWER COMPANY • 2002 Home Avenue, Dayton 7, Ohio

In Canada • The Lau Blower Company of Canada, Ltd., Kitchener, Ont., Canada

LAU World's Largest Manufacturer of Air Conditioning Blowers

John Craig, Sales Manager, Points Out Advantages of usAIRco Distributorship

MINNEAPOLIS, MINN.—"The distributor who wants to make the most of the biggest and most competitive year yet faced by the air conditioning business should investigate the advantages of usAIRco's distributor program immediately."

John Craig, usAIRco Packaged Refrigeration Sales Manager, then cited the following features, designed to back up distributors from every conceivable angle.

(a) Complete Line. usAIRco manufactures high quality packaged equipment for industrial, commercial and residential markets . . . at competitive prices.

(b) Warehouse and Finance Plans . . . enable distributors to keep equipment on hand for use when needed, without tying up capital.

(c) usAIRco 5-year Warranty and service allowance are most liberal in the industry.

(d) Dealer aids, generous sales promotion helps and advertising allowances available.

(e) Direct factory representatives located in each section of the country to counsel distributors in every phase of the business.

Mr. Craig emphasized a coopera-



tive advantage found only in a firm the size of usAIRco. "Our understanding of the distributor's problems and willingness to help solve his problems are as vital a part of our program as the points listed in black and white."

For complete details at no obligation, write John Craig, United States Air Conditioning Corporation, 3240 Como Avenue S.E., Minneapolis 14, Minnesota.

Advertisement

They'll
Do It
Every
Time

by

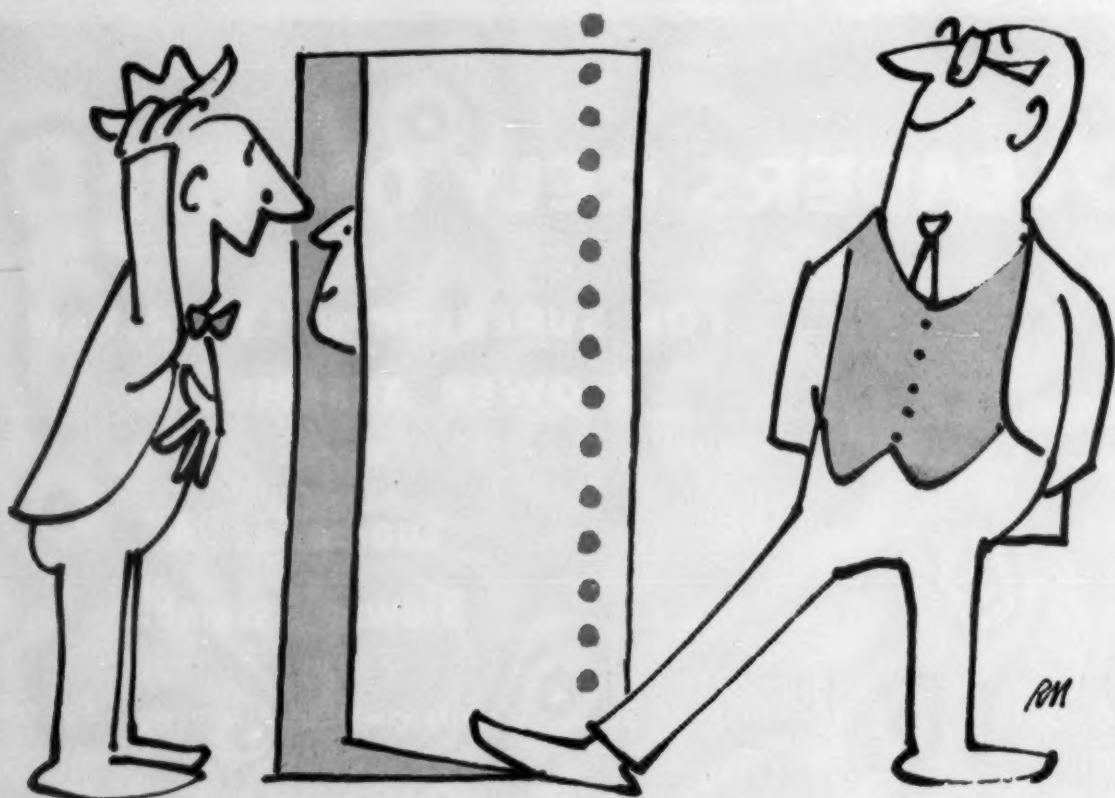
Jimmy
Hatlo



By patience and determination, rather than by a harsh upsetting of tradition, we move toward our goal. This is the way to get things done in America. One man tells another, does what he can, till the sum of these efforts grows into a national aspiration. Then occurs our miracle of democracy.—NEWTON B. DRURY.

Our truest pleasures stem from making other people happy. Under Communism human beings are deprived of this greatest personal satisfaction.

Communism forces its slaves to hate and hurt their friends and relatives. It rewards evil, penalizes unselfishness, prevents self-fulfillment, and damns innocent souls. It's the reverse of LOVE.



It's great to be a Carrier
Home Weathermaker* Dealer!

Because Carrier Distributors
are extra helpful!

None of our Carrier Distributors would ever really slip a foot in a prospect's door; they're much better salesmen than that! Take the job they did this past fall selling Weathermakers to replace antiquated furnaces! Carrier Dealers developed calluses from ringing up record sales and new muscles from counting the cash! And that's because...

Carrier Distributors know air conditioning!

These men grew up in the air conditioning business! Twenty-five of them have been associated with Carrier for more than twenty years! They're the industry's most experienced air conditioning distributors! In the home air conditioning business,

you just couldn't find stronger support anywhere. Besides...

You have the Carrier name to sell!

Carrier doesn't make light bulbs, TV sets or phonograph records—just air conditioning! They are the people who know air conditioning best! And Carrier Weathermaker Home Air Conditioners prove it—by selling best! More new air conditioned homes are equipped with Carrier Weathermakers than with any other make.

Like to get in the act? Your Carrier Distributor has a great course in home air conditioning for you... estimating, sales, design, application and installation! Better enroll right away!

Mail coupon! Learn Home Air Conditioning!

LOOK WHAT YOU GET FROM THE CARRIER DISTRIBUTOR!

- A special course: "How to Get Started in Home Air Conditioning!"
- A special "Starter Package" to identify you as a Carrier Dealer!
- Financing and warehousing plans to ease your inventory problems!
- Four retail financing plans designed to make payments painless!
- Sales, advertising and engineering assistance when you need it!

LOOK AT THE WEATHERMAKERS YOU HAVE TO SELL!

The Carrier Year-round Weathermaker is illustrated below. It heats and cools the whole house. It burns gas or oil; it is available in air-cooled and water-cooled models. Other air-cooled Weathermakers add onto any existing warm air system, install independently of wet heat systems. Together they make up the industry's best-selling line of home air conditioners!

*Reg. U.S. Pat. Off.



Carrier AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

CARRIER CORPORATION, 310 S. Geddes Street, Syracuse, New York

Please put me in touch with the Carrier Distributor who can enroll me in that Home Air Conditioning Course.

I'd be interested in selling: ☐ Carrier Residential Weathermakers ☐ Carrier Room Air Conditioners ☐ Carrier Self-contained Weathermakers ☐ Carrier System Weathermakers ☐ Carrier Ice-makers

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City _____

State _____

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Heroes Are Made, Not Born

February is a distinguished month in American history, because it contains the birthdays of two Presidents who were truly great: Abe Lincoln and George Washington. Each succeeded in uniting a nation which was on the verge of collapse.

Once more, in February, we have grave troubles. Communist China and Russia threaten us from abroad. Internally we are faced with schisms, and higher taxes, and bigger debts.

Citizens are crying out for a leader—a new Lincoln or Washington. Perhaps we have one in President Eisenhower. But let us not put too much trust in the magic of an attractive man.

We, the People, still must bear the burden of personal responsibility. No President can have a chance to set us back on the right track unless the convictions of America's straight-thinking citizens are expressed unmistakably. Politicians reflect the attitudes of voters.

What made Lincoln and Washington great was steadfast adherence to the principles of our Constitution. Abe and George were bitterly attacked by little men who put selfish interests above those principles. Those Presidents won out because the good common sense of independent Americans was substantial enough, strong enough, and heard enough to backbone their devotion to safe, sane, and sound economic and political maxims.

In other words, an elected official can't become a Great Leader unless he is supported by mature men and women who believe in honesty, thrift, hard work, and personal responsibility.

It is up to us to decide whether we shall trade temporary advantage for permanent poverty, or suffer a short-term awakening in return for a revival of opportunity and justice for ourselves and our children.

We must decide between a little more today and a lot less tomorrow; between immoral selfishness and the future of the human race.

Nor can we beg the issue by trusting a photogenic or comforting "leader" to resolve our problems. He will be only as good as we allow him to be.



OFF THE CHEST

Broughel Refrigeration
846 Third Ave.
Troy, N. Y.

Editor:

I run a one-man service business. During the course of each year I get stuck with a few (five to several) dead beats (can't get your money) for amounts from \$5.00 to \$50.00 or more. The total amount is not too much to lose outright but the frustration and nervous tension and time spent trying to get your money makes it my No. 1 beef. Consulting with fellow businessmen on this subject: They say tell them (customers) how much a job will cost and tell them the

money has to be there when done. Many of my service calls require cutting into systems before I know what I have run into. Then, too, 99 out of 100 of my customers turn out to be "decent folk."

I am sure everyone in business has been stuck by a dead beat by unusual circumstances or a far-fetched story to get credit. I know I would appreciate a small department in your news each week forewarning us of one or more "raw deals" that have already been pulled on your conscientious readers, together with their solution or some possible practical solution.

DAVID J. BROUGHTEL



Service & Supplies

How To Make Service Personnel Pay Off In Sales for Company

NEW YORK CITY—When you turn your service department into a sales department, you will start making a profit on service, Harry A. Hattenbach, president of the Hattenbach Co. of Cleveland, advised members of the National Commercial Refrigerator Sales Association at that group's recent eighth annual convention here.

"Our job," he said, "is to train and educate our servicemen to be the best in the field, because they are our goodwill ambassadors toward sales. And, it is easy to collect a service bill if you have done a good service job."

"We hold bi-weekly service meetings as part of our training program. The meetings and programs are scheduled in advance, if at all possible."

"We discuss at these meetings problems of service and the best methods of solution. We always try to make the meetings informal so everybody takes a part. We try our utmost to get all our men to give their ideas on solution of a problem or to ask questions."

"About once every four meetings we ask some manufacturer's representative to give a talk. We always like to have him use illustrations or slide films. You must keep these meetings interesting and on the move."

Hattenbach commented that the meetings are held on Wednesday afternoons. "We tell our servicemen they don't have to come because it is after hours and they don't get paid for it," he added. "However, I take attendance and I tell them I want to know who came and who didn't."

"We make a big point to our servicemen that our reputation and future prospects of success are in their hands. If you have a good satisfied service customer, you will always have a good prospect for a sale."

"To help make our men proud of their work, we take pictures of our installations and furnish copies to the men who installed the job. Everybody likes a pat on the back."

"Remember your servicemen are valuable assets. Don't keep them always in the background. Let your service department and sales department know it is a two man team that makes a successful business."

"We have set up in our service department three different bonus plans; one for service management personnel, one which pays a bonus each six months to our servicemen on service contracts, and one which gives a bonus to any individual who turns in a tip for a sale, and results in a sale within 90 days."

"Servicemen are just as human as your salesmen. When they put forth effort, which results in a profit, they like to share in that profit."

Hattenbach said that he used to pay salesmen a bonus on parts sales, but doesn't any more. "We stopped it because we found that they were selling parts the customers didn't need in order to get the bonus," he asserted.

"Your service department is just as necessary as your sales department," Hattenbach concluded. "A service department can be a big asset to sales as well as a profitable department."

Halstead Names Smith For Tri-State Area

PITTSBURGH—Harry R. Smith has been appointed sales representative in the Tri-State area surrounding Pittsburgh, it was announced by Horace I. Schmidt, sales manager of Halstead & Mitchell.



H. R. Smith

Smith, who will handle sales of the company's conduit and cooling towers, joined Halstead & Mitchell's production division in May, 1954, and moved into sales in the Pittsburgh office in September. Before joining Halstead & Mitchell, he was associated with the National Tube Co. Div. of United States Steel Corp. for 11 years.

Water Treatment Engineer Named by Metropolitan Co.

LONG ISLAND CITY, N. Y.—Metropolitan Refining Co., Inc. here has appointed Frederick S. Hodgdon as associate chief engineer to handle water treatment problems in air conditioning and allied equipment.

For the past 10 years, prior to joining Metropolitan, Hodgdon was with Carrier Corp.

Penn Controls Offices In New Locations

GOSHEN, Ind.—According to a recent announcement by R. H. Luscombe, general sales manager of Penn Controls, Inc., the Los Angeles and Milwaukee district offices have changed addresses.

The Los Angeles district office, managed by E. M. Ford, was formerly located at 228 Glendale Blvd. The new address is now 333 Glendale Blvd.; telephone number, DUnkirk 3-6755.

The Milwaukee district office, managed by H. D. Gray, was formerly located at 4557 N. 106 St. The new address is now 5409 W. Vliet St.; telephone number, GReenfield 6-2370.

Luscombe also stated that the Berkeley, Calif. district office zone number was changed from Zone 2 to Zone 10.

The address, 2806 Eighth St., remains unchanged.

Hawco Joins Sporlan Field Sales Group

ST. LOUIS—Frank C. Hawco has joined Sporlan Valve Co.'s field sales organization, it was announced by the company.

He holds a B.S. degree from Northeastern university and has extensive experience in the field of air conditioning and refrigeration.

For the present Hawco will work out of Sporlan's Mt. Vernon, N. Y. office.

He will assist in providing coverage for its greater New York City and northern New Jersey territory, according to the company announcement.



Frank C. Hawco

Honeywell Opens Sales Offices In Hammond, Ind.

CHICAGO—Establishment of a new branch sales and engineering service office in Hammond, Ind., has been announced by Minneapolis-Honeywell Regulator Co.

O. V. Spousta, formerly manager of Honeywell's branch office in Louisville, Ky., will manage the new office, T. S. Carley, midwest regional manager, said.

The new office will handle the sale, design, service, and installation of automatic temperature controls and industrial processing systems in the southern portions of Cook and DuPage counties, in four other eastern Illinois counties and in two counties in Indiana.

This area—comprising the heart of the great Calumet industrial district—was formerly served from Honeywell's midwest regional office in Chicago.

ONE STOP SHOPPING FOR ALL REFRIGERATION PRODUCTS

MUELLER BRASS CO. MANUFACTURES A COMPLETE LINE OF VALVES, DRIERS, FITTINGS AND ACCESSORIES FOR EVERY NEW COMMERCIAL INSTALLATION AND EVERY REPLACEMENT NEED . . .



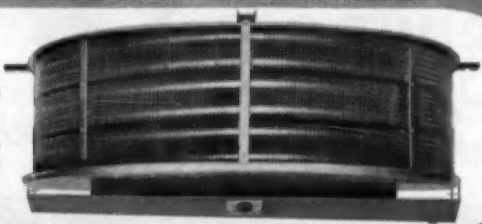
Your refrigeration wholesaler can supply you with Mueller Brass Co. STREAMLINE refrigeration products that more than meet the rigid requirements of the refrigeration and air conditioning industry. Complete range of styles and sizes. Ask your wholesaler for the latest catalog of STREAMLINE refrigeration products or write us today.

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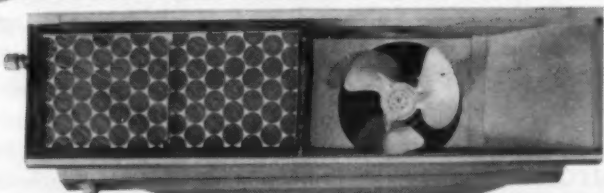
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Tenney TWC* UNIT COOLERS for Comfort Cooling

CHILLED WATER



OR



DIRECT EXPANSION

For the first time available for use with chilled water or direct expansion.

Semi-circular for all-round air distribution, Tenney TWC's are built in a range of 1 to 3 nominal tons. Designed expressly for comfort cooling, with distributor circuits where necessary. All units complete with standard filter sections. Like all Tenney "TW's" they open for servicing by removal of a single thumb screw. No electrical, refrigeration, or drain lines to disconnect.

Bulletin 105-54 has complete information and specs.



Tenney
ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, N. J.
Plants: Union, N. J. and Baltimore, Md.

Engineers and Manufacturers of Refrigeration and Environmental Equipment

3505

There Is Selling Economy In 'High-Paid' Salesmen

Commercial Firm Hires 'Sales Engineers' And Relieves Them All of Unnecessary Details

NEW YORK CITY—The greatest selling economy the commercial refrigeration distributor can make is to employ high-paid salesmen, Milton Schwartz, partner in S. & M. Schwartz & Co. here, recently advised members of the National Commercial Refrigerator Sales Association.

Speaking at the association's eighth annual convention, Schwartz said that his firm probably has the highest paid salesmen in the industry. Every full-fledged salesman last year earned at least \$11,000 and two earned considerably more, he noted.

"They are sales engineers in the truest sense of the word," Schwartz stated. He let a letter of commendation he wrote to one of his salesmen last summer clarify his statement. The letter follows:

"Dear Ray,

"If a medal can be given for salesmanship, I think the recent deal on the latest Associated Store you sold would warrant that for you.

"Here was a case that must command professional admiration from any man who ever engineered

a sale of a button to a bridge.

"You knew these two boys were interested in expanding and opening another market. So you went out, found a piece of land you liked, sought out a builder, convinced him to buy the land, and then worked out a satisfactory lease between builder and customer.

"All of that before fixtures were even discussed, and then you had a tough time with a not too appreciative customer in closing your fixture deal. Ray, that is what I call sales engineering. You used judgment, perseverance, intelligence, and a lot of hard leg work to complete this deal.

"I have no medal for you but my admiration knows no bounds. Won't you please accept the enclosed check to show my appreciation for your unusual efforts in behalf of the company.

Sincerely,

Milton L. Schwartz

"Because they are expert sales engineers," Schwartz continued, "and comparatively high priced men, we do everything that we can to see that we conserve their time for the job that they do best, and

that, of course, is selling.

"They make no plans, we can hire draftsmen at less than half their income. They prepare no estimates; dictating machines, typists, and secretaries are their able assistants.

"They don't supervise the installation of equipment. However, they must visit their jobs while they are being installed at least once every day to keep the customer happy and satisfied.

"I'd like to go over the steps of a typical sale, from start to finish—one that did not get away.

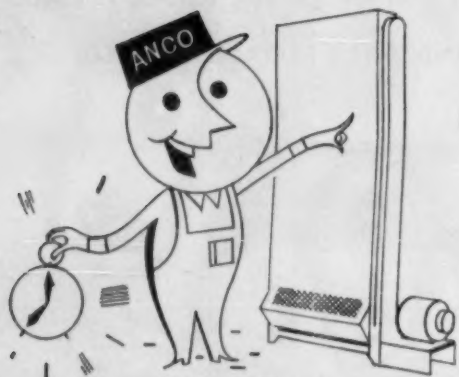
"A lead comes in from one of our sources, usually by phone. It is quickly checked on our cross file to ascertain that it is truly a new lead.

"If it is, we immediately send the prospective customer a personal original letter, that 'Mr. So and So' of our office will call on him soon. We enclose some literature, and advise him of some particularly nice market we have recently completed in his area, so that he can see it at his convenience.

"This sometimes saves the sales-

(Concluded on next page)

Remove Scale from Condenser Tubes SAFELY with ANCO Cleaner



ANCO Condenser Cleaner removes scale and rust from condensers without injury to equipment. This exclusive formula, in dry form, is simply dissolved in the sump while the system is in operation. Within 2 to 15 hours, depending on the thickness of the scale, the tubes are clean and the condenser's efficiency restored. ANCO Condenser Cleaner is equally effective in evaporative condensers and those with separate cooling towers.



PROTECT CONDENSERS AGAINST RUST and SCALE with ANCO WATER TREATMENT

New or freshly-cleaned condensers should be protected against scale, rust and pitting with ANCO Cooling Water Treatment. It comes in convenient individual cans, ready to use. Just place the can in the condenser pan or tower basin where the contents gradually dissolve into the cooling water, keeping the system clean and operating at peak efficiency. Absolutely harmless to all metal parts.



KEEP COOLING TOWERS CLEAN with ANCO ALGAECIDE

ANCO Algaecide removes algae and slime from cooling towers and condenser tubes without the necessity of shutting the system down for cleaning. ANCO Algaecide briquettes added at intervals to the sump will prevent algae and slime from forming. Although completely harmless to metals, ANCO Algaecide acts as a preservative in wood cooling towers.



ALL ANCO PRODUCTS are manufactured from exclusive formulas by the Anderson Chemical Company whose sole business is the treatment of water for industrial and commercial uses. ANCO Products are preferred by leading refrigeration and air conditioning service organizations throughout the country. When you sell the best you profit most. Sell ANCO Products.

SEE YOUR WHOLESALE OR WRITE DIRECT

Anderson Chemical Company

BOX 1424 • MACON, GEORGIA

S. & M. SCHWARTZ & CO. JOB INFORMATION SHEET

STORE NAME ADDRESS

NEAREST CROSS STREET TELEPHONE NO.

STORE FRONT

Window Sizes (1) Width.....Height.....
..... (2) Width.....Height.....

Doors—Single or Double (1) Width.....Height.....
..... (2) Width.....Height.....

Is Glass Removable? By Us By Others

Work to be done on front? (Detail in Production Sheet)

Will all Planned Fixtures Go Thru Door Opening?

Grill in Front? Reason

INSIDE STORE

Are there any Posts, Columns, Projections, Ductwork, Steam or Water Pipes?

Detail Size and Location on Plan Size Location on Plan

Any Trap Doors? Condition

Hidden Windows? Condition

Ceiling Height Condition

Wall Condition Painting or Wallpapering?

FLOOR

Wood or Cement Condition Two Levels?

Trap Doors to be cut?

Tile, Wood, or Linoleum to be laid? Square Feet

BASEMENT

Indicate on Plan if it does not match store in width and length?

Height?

No Basement? Where do Machines go?

ELECTRICAL DATA

Current Available: A.C. D.C. Voltage Single Phase

3-Phase

Are We doing Electric Work? Lights

Existing Meter Capacity Amps

PLUMBING

Slop Sink Available? Pipe Lines to Move?

Toilets or Sinks to Move? Gas, Water Lines to Install?

Drains to Install? Radiators to Move?

WALK-IN BOX

Over-all Dimensions Width Depth Height

Freezer Regular Meat Dairy

Blower Coils Combination Reach-walk-in

Type Wood Finish: Interior Exterior

Type Front Facing Thin Handware

Meat Rails

Entrance (Location Indicated on Plan)

Door Right Left Center

Insulation Type Thickness

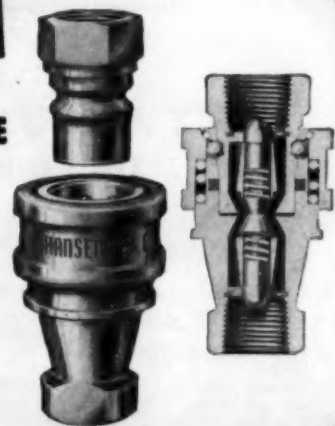
Shelves Flooring Drain

EXTRAS:

THIS JOB INFORMATION SHEET is a key form in helping S. & M. Schwartz & Co., New York City commercial refrigeration distributorship, get the most out of its highly paid and highly specialized salesmen. The salesman makes this form out immediately after closing the sale, so that there will be no disagreements over what is to be done under the sale contract.

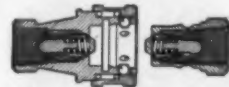
HANSEN

QUICK-CONNECTIVE 2-WAY SHUT-OFF COUPLINGS!



QUICK CONNECTION
AND
DISCONNECTION

INSTANT
AUTOMATIC FLOW
OR SHUT-OFF



Seals Both Ends of Line
AUTOMATICALLY
INSTANTANEOUSLY

Quick Connective
Fluid Line Couplings for
AIR • OIL • GREASE • HYDRAULIC
FLUIDS • REFRIGERANTS • STEAM
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GASOLINE • COOLANTS • WATER

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To connect a Hansen Two-Way Shut-Off Coupling, you just pull back the sleeve and push the Plug into the Socket. To disconnect, merely pull back sleeve. No tools required. Similar valves in Socket and Plug shut off both ends of line when Coupling is disconnected—practically eliminate spilling of liquid or escape of gas at instant of disconnection.

FEMALE PIPE THREAD CONNECTIONS
FROM 1/4" TO 1"

Hansen Series HK Two-Way Shut-Off Couplings are available with female pipe thread connections from 1/4" to 1" inclusive. Available in brass or steel.

Also Straight-Through and One-Way
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Commercial Refrigeration

Well Paid Salesmen Prove Profitable--

(Concluded from preceding page)
man many calls and we know how important it is to have the salesman plan his calls. There are two schools of thought on the advisability of allowing prospects to visit markets without the salesman. If you have a satisfied customer you needn't fear that. Your satisfied customer can be your best salesman.

Timing of Call Emphasized

"The salesman is then given the lead slip and calls the prospect for an appointment the next day. I want to emphasize that it must be the next day. That gives us the opportunity, meanwhile, to get a line on the prospect's credit standing. We don't want to waste sales effort on doubtful accounts.

"When the prospect is called on, the salesman calls in the information to our office and one of our draftsmen will go out to the location, measure the store, and prepare the layout.

"After he has discussed the man's ideas with the salesman, we will make up three ozalid white prints on our own machine. We estimate that having our own machine saves us a hundred dollars a month in time and expenses. One white print goes to the salesman, one to me, and one for the customer's estimate file.

"I will then prepare the estimate from information I get from the draftsman. Remember that all this time the salesman is 'out on the street.'

"We do not mail the proposal. The salesman will bring the estimate, white print, manufacturers' literature, and other pertinent data in the proposal folder, with item-

ized figures on everything and explain it to the prospect.

"This hypothetical deal was closed. Incidentally, our average of calls versus closings are thankfully very high.

"Any expense that the salesman encounters in closing the deal, such as entertainment, gasoline, tolls, etc., everything comes out of his \$25 a week expense allowance. That is it—there are no exceptions.

"The salesman then makes out our job information sheet, which describes door openings, basement and floor conditions, contracting work, contractors' addresses, etc., so that we can coordinate the work from our office.

"The next day the salesman comes in and dictates the production sheet, which refers to the white print, and number, contains model numbers of Schwartz fixtures (we have a very complete catalog), and Friedrich model numbers of cases and machines.

Non-Catalog Selling Discouraged

"On any special fixture not in our catalog, the salesman explains the fixture to the drafting department where the drawing is made and the customer is called to our office for his approval and signature on the drawing. We discourage non-catalog selling.

"The original proposal, production sheet, white print, deposit, notes, job information sheet, contract, and credit check is placed on my desk for approval and when that is completed, a copy of the production sheet, white print, and special fixture drawings are distributed to the plant foreman, job supervisor, and salesman.

"We usually have a job confer-

ence every Saturday morning.

"The salesman has a change of contract form in his sales kit should any extras or changes become necessary, although we always try to discourage extras. They often as not prove to be non-profitable to the customer.

"When the job is completed the salesman must be satisfied that every last detail is completed to his satisfaction. Then we know we will have a satisfied customer."

Sherman Associates Sales Post Goes to Bud Wilks

MOUNT VERNON, N. Y.—C. Q. Sherman Associates, Inc. here, national merchandising sales organization formerly known as Refrigerated Equipment Sales Corp., has announced the appointment of Bud Wilks as vice president in charge of sales.

Wilks, who has more than 10 years of sales management and merchandising experience, has held positions with such companies as Koroseal Div. of B. F. Goodrich Co.; Cohn-Hall-Marx Plastic Div. of United Merchants & Manufacturers, Inc.; and Pantasote Corp.

Cool Grapes

NORTH EAST, Pa.—Keystone Cooperative Grape Association plans to spend \$350,000 on an expansion program which includes a large cold storage and sharp freezer room.

Atomic Energy May Play Role

Bright Future Seen for Refrigeration, Air Conditioning In Transportation Field

NEW YORK CITY—One of the most practical opportunities for the use of atomic energy in the industrial field is afforded by the Transportation Industry, the prospects for which offer romance and unlimited opportunities, said Henry A. Strong, executive secretary of the Refrigeration Industry Safety Advisory Committee, speaking before the New York section of the American Society of Refrigerating Engineers.

Strong, formerly in charge of the Transportation Div. of Carrier Corp., a recognized authority in the field of transportation air conditioning and refrigeration, presented a highly informative talk on this subject, accompanied by slides illustrating the various types of equipment used in airplanes, railway cars, buses, and commercial trailers and predicted a bright future for increased use of refrigerating equipment in the field.

As chairman of ASRE Technical Committee 4.3 (Truck and Railway Car Refrigeration Units), Strong reported that with the cooperation of the U. S. Department of Agriculture and the National Bureau of Standards, a most valuable lot of data and pertinent information has been collected on the subject.

For example, he said, 18% of

the present refrigeration cars are more than 30 years old and the average age of the passenger cars now in use is 36 years, indicating the great need for new cars and equipment.

The trend, said the speaker, is toward the use of electro-mechanically equipped refrigerator cars of which there are now over 500 in use, and approximately 5,000 intercity buses with refrigerated air conditioning equipment now in use.

The greatest problem in transportation refrigeration, he said, is the selection of the prime mover.

The use of the air cycle, he pointed out, is prevalent in airplane refrigeration, in addition to the conventional system.

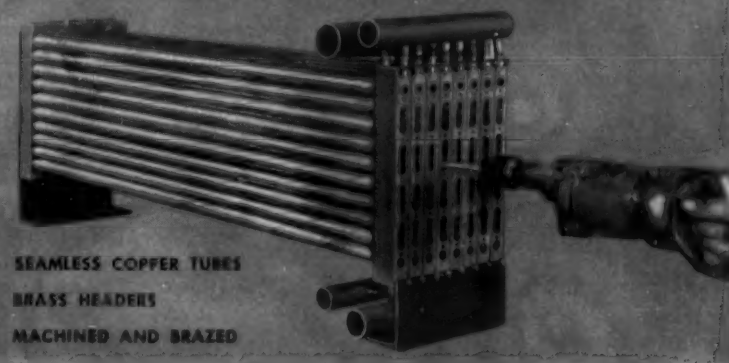
Chairman B. Leventhal, who presided, turned the meeting over to S. W. Brown, program chairman, who introduced the speaker.

Although the New York section is the oldest ASRE section, having been organized in 1914, it apparently has never been provided with a charter. Accordingly, under the direction of the 50th Anniversary Committee, a new charter was presented to the section by the newly elected executive secretary, Robert C. Cross, and accepted by Regional Director Charles C. Grote.

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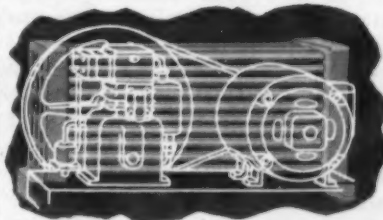
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Low Pressure Drop	yes	yes	yes	no
Adsorbs Water Physically instead of Chemically	yes	no	yes	yes
Non-dusting	yes	no	no	yes
Adsorbs Acids	yes	no	yes	yes
Will dry Freon 12 to below 2 ppm at 120°F	yes	no	yes	yes

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How To Balance Refrigeration System By Selecting Proper Flow Control Device—6

By John A. Schenk, Director of Engineering, Alco Valve Co.

Simple control of the compressor operation by thermostat or pressure switch is inadequate for many refrigeration systems. In many of the present day installations, the desired results cannot be obtained with the "on-off" method of operation.

Suction line regulators offer a very effective method of balancing the output of the refrigeration system to the requirements of the load. Such regulators also enable the system to meet the requirements of a wide range in load by controlling the operating pressure of the evaporator or the suction pressure of the compressor.

Suction line regulators may be divided into two distinct categories,

the evaporator pressure regulator, which, as the name implies, regulates the evaporator pressure, and the suction pressure regulator or "holdback" valve, which regulates the suction pressure at the compressor.

Evaporator pressure regulators can be used on any refrigeration system fed by a high pressure float valve, thermostatic expansion valves, low pressure float valves, or solenoid liquid valve and float switch combinations. Their use is indicated wherever a minimum evaporator pressure or temperature is desired.

An evaporator pressure regulator may be used on a blower type finned evaporator where dehumidifi-

"Balancing the Refrigeration System with the Aid of Proper Flow Control Devices" has been discussed before several sections of the American Society of Refrigerating Engineers by John A. Schenk, director of engineering for Alco Valve Co.

In the course of his talk Schenk describes the functions of various flow control devices, including thermostatic expansion valves, etc., and offers suggestions on application and service problems.

The talk is being published by the NEWS in several installments, this being the sixth and final article. The first appeared in the Jan. 17 issue.

fication is to be prevented or minimized; for example, in vegetable storage. The regulator will prevent the evaporator pressure (and corresponding saturation temperature) from falling below a predetermined pressure setting at low loads.

Prevents Dehumidification

This prevents a large temperature difference between evaporator and air temperature which otherwise would cause an objectionable amount of dehumidification.

Evaporator pressure regulators are used on brine or water chiller applications, as shown in Fig. 20, in order to prevent "freeze up" of the chiller when the load is low. When the load is increased, an evaporator pressure in excess of the regulator setting is produced and the regulator will open further until it reaches the wide open position at full load.

On multi-evaporator installations, as shown in Fig. 29, evaporator pressure regulators can be installed to provide control of the temperature and humidity in each unit. The regulators prevent lowering of the desired temperature in the warmer units, while the compressor continues operating to satisfy the coldest unit.

With such a system, the compressor may be controlled by a low pressure switch or by thermostats installed on the individual units.

Internal, External Pilot Connection

The evaporator pressure regulator, with internal pilot connection, receives its source of pressure for pilot operation at the regulator inlet connection. Under some conditions of fluctuating load, the stability of evaporator pressure regulator performance can be improved by using a regulator with an external pilot connection.

By connecting the external pilot line to the surge drum or suction header on the evaporator, a steadier source of pressure is obtained for pilot operation, and the evaporator pressure regulator will give better performance. The larger evaporator pressure regulators are generally provided with the external pilot connection.

A remote pilot-operated evaporator pressure regulator can be provided by removing the integral pressure pilot, capping this connection, and substituting a remote pressure pilot in the external pilot line. Other types of pilots can be used in the external pilot line for various special applications.

In Fig. 20, a small solenoid valve installed in the external pilot line enables the regulator to function as a suction stop valve as well as evaporator pressure regulator. This is particularly useful on a flooded evaporator to prevent "pumping out" of the evaporator when the thermostat is satisfied and the compressor continues operating to cool other evaporators.

In some instances, the use of a modified evaporator pressure regulator may be more desirable to control the temperature of the medium being cooled rather than controlling the evaporator pressure

a large temperature split may be used without danger of a "freeze up" when the load is high. This arrangement provides the maximum temperature difference to accommodate the high load and maximum rate of pull down.

Limit Control Needed

On a single evaporator installation, when the load is satisfied, it is necessary to provide a limit control in the form of a thermostat or pressure switch to control the operation of the compressor and solenoid liquid valve, if one is used.

In the event a low limit control of the evaporator pressure is desired when using a temperature pilot operated regulator, the pressure pilot shown dotted in Fig. 30 is also required.

In some cases it may be desirable to change the evaporator temperature in response to a control instrument while retaining all of the evaporator as effective cooling surface. This is possible through the use of an evaporator pressure regulator with a pneumatic connection as shown in Fig. 31.

When the control instrument requires an increase in evaporator temperature, an increase in air pressure is supplied on the top side of the pressure pilot diaphragm, which raises the evaporator pressure and corresponding saturation temperature.

A decrease in air pressure supplied to the top side of the pres-

(Concluded on next page)



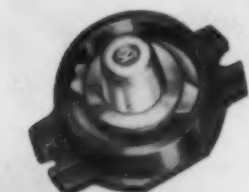
Recommends KLIXON Protected Motors for Cost Savings

WACO, TEXAS: Mr. O. H. Caldwell, owner of Caldwell Electric Shop, insures his work by recommending Klixon Motor Protectors. He says:

"For years we have recommended the use of Klixon Motor Protectors to our customers. Our experience has definitely shown that Klixon protectors have not only insured ourselves against motors being returned because of burnout... but have also saved our customers much time and expense from a costly rewind."

Klixon Protectors Reduce Service Calls and Repairs by Preventing Motor Burnouts

The KLIXON Protectors, illustrated, are built into the motor by the motor manufacturer. In such equipment as refrigerators, oil burners, washing machines, etc., they keep motors working by preventing burnouts. If you would like increased customer preference, reduced service calls and minimized repairs and replacements, it will pay you well to ask for equipment with KLIXON Protectors.



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NEXT time you're up against a tough application problem involving low-range power, take advantage of Redmond's "Customer Engineering Service." It's a complete service... specialized... maintained solely to help you find exactly the motor you need for the job you want done. And important, too, is the fact that Redmond Company, Inc. specializes exclusively in the design, development and manufacture of Micromotors up to 1/6th horsepower, small blowers up to 280 c.f.m. and controllers... no consumer products to compete with the products of customers.



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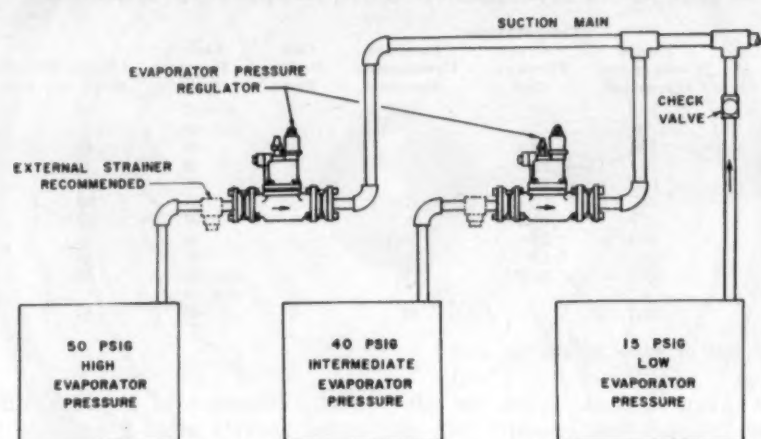


FIG. 29—Evaporator pressure regulators are used here in multiple system to control temperature and humidity.

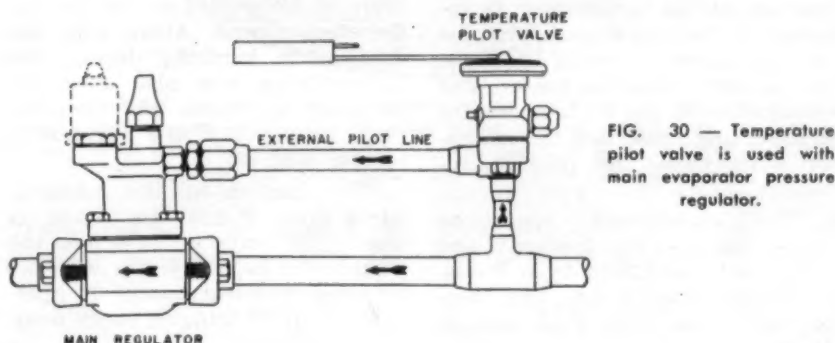


FIG. 30—Temperature pilot valve is used with main evaporator pressure regulator.

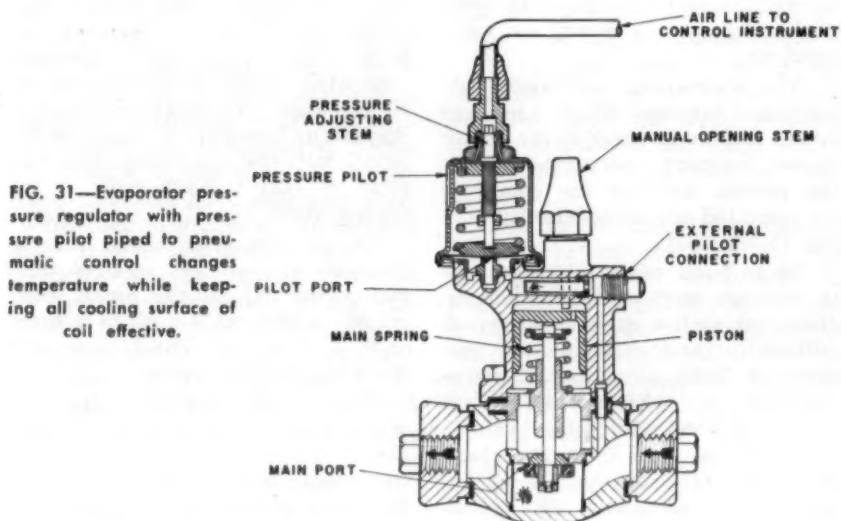


FIG. 31—Evaporator pressure regulator with pressure pilot piped to pneumatic control changes temperature while keeping all cooling surface of coil effective.



Increase COOLING TOWER EFFICIENCY With ASPIR-JET

Aspir-Jet, the new spray nozzle, increases efficiency of cooling towers by increasing water break-up and improving water distribution. This is accomplished by the Aspir-Jet unique design which atomizes the water with as little as one-half pound nozzle pressure. Formed of butyrate plastic, Aspir-Jets last longer because they do not corrode. Thousands already in use are giving better cooling even with lower than normal pressures.

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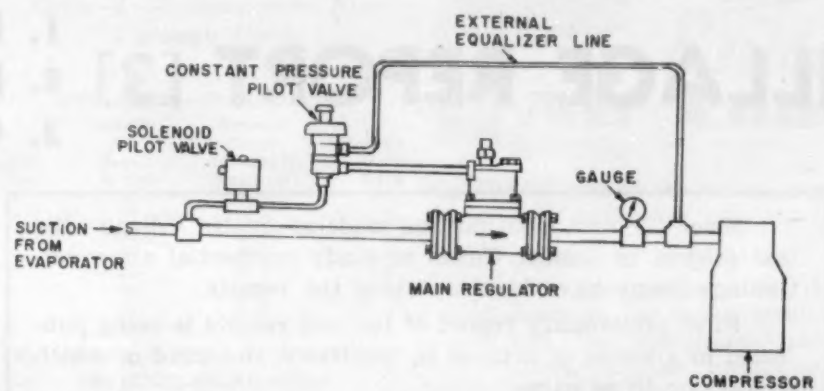


FIG. 32 shows externally pilot-operated suction pressure regulator with solenoid pilot valve for positive suction shut-off.

tained in the evaporator will create excessive suction pressure during a prolonged shut-down period, or following the defrosting operation.

Use of Suction Pressure Regulator

The suction pressure regulator has been designed to prevent motor overload caused by excessively high suction pressure. This type of regulator should be used on any installation, where the liquid expansion valve cannot limit the suction pressure and where compressor motor protection is required because of:

1. High starting loads.
2. Surges in suction pressure.
3. High suction pressure caused by hot gas defrost.
4. Prolonged operation at excessive suction pressures.
5. Low voltages and high suction pressure conditions.

The small size suction pressure regulators are usually built of either the direct acting or internally pilot operated design, while the large size regulators are usually constructed on the externally pilot operated principle. Fig. 32 illustrates the application of an externally pilot operated suction pressure regulator with a solenoid pilot valve to accomplish positive shut-off.

Using Compressor Discharge Gas To Pilot Regulator

On low temperature installations where minimum suction line pressure drop is of the utmost importance, it is desirable to operate suction pressure regulators without the normal pressure drop necessary to move the valve through full stroke.

This can be accomplished by using the compressor discharge gas to pilot the regulator as shown in Fig. 33.

In the illustration, Fig. 33, the pressure drop through the regulator is caused only by friction and this pressure drop can be made negligible by choosing a regulator with the same port size as the suction line size. The loss, due to the hot gas "bleed" through the regulator, is insignificant because the quantity of gas involved is small.

The "how to do it" of "Balancing the Refrigeration System with the Aid of Proper Flow Control Devices" might also be explained by providing solutions to a number of application problems and reasons for selection of the various flow control devices.

It appeared that this method would neither adequately cover the potential possibilities of using each

type of flow control device nor would it bring out all the advantages, disadvantages, and caution points of application.

Points To Consider

By dividing the refrigerant flow control devices into distinct groups, as chosen here, it is possible to give more careful treatment in each group to the following points:

1. Definition of basic functions.
2. Characteristic features.
3. Other modifications.
4. Advantages and disadvantages.
5. Caution points of application.

It is believed that this method will bring to each reader a:

1. Better understanding of the functions of refrigerant flow control devices.

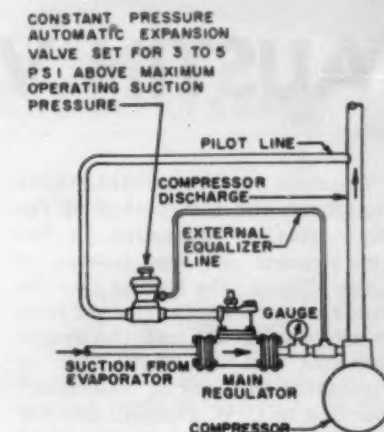


FIG. 33—To minimize pressure drop on low temperature installations, suction pressure regulator can be piloted by compressor discharge gas.

2. Better knowledge of the proper application of refrigerant flow control devices.

3. Greater realization of the potential uses of refrigerant flow control devices.

4. Greater confidence in approaching and solving future refrigeration control problems that each one encounters.

It is worth repeating that the engineer must fully understand the customer's requirements and expectations of the refrigeration system before selection of the various system components and especially before the controls and refrigerant flow control devices are selected.

(The End)

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THE TURNER BRASS WORKS

STANFORD, ILLINOIS

AUSTIN VILLAGE REPORT [3]

"Constant recordings were taken throughout the test period of the indoor relative humidity in the living rooms in the homes of Austin Village. On Datum Day the pounds of condensate released from the air passing through the evaporator coil was measured, both as to quantity and rate of collection," according to C. W. Nessell, director of the Mobile Laboratory of the National Warm Air Heating and Air Conditioning Association.

"It was found that the indoor relative humidity ranged from a low of 40% in some houses to a low of 66% in other houses. Day-time operation showed the lowest relative humidity due to continuous compressor operation, plus the fact that the outdoor relative humidity was constantly descending as the temperature increased and usually reached its minimum between 3 and 4 in the afternoon.

"Table 3 gives the average daytime and high and low night time indoor relative humidities for Datum Day on 10 typical installations selected at random. The table also gives the total hours of compressor operation and the pounds of condensate collected on that day. The depth of the evaporator coil in rows is also given.

"The daytime period is from 8 a.m. to 7 p.m. and night time

Since the first mention was made of Austin Village—the test project in Austin, Texas to study residential air conditioning—many have been awaiting the results.

First preliminary report of the test results is being published in a series of articles in the NEWS, the third of which appears on these pages.

This final portion of the report by C. W. Nessell, director of the Mobile Laboratory of National Warm Air Heating and Air Conditioning Association, covers indoor relative humidity, heat gains from ducts, and operating costs.

A report by Ned Cole, project manager, will be published in future issues.

The 21 homeowners are generally satisfied with both the comfort obtained and the operating costs. But while most systems gave satisfaction, shortcomings were apparent. Noise is a factor in some cases, as was condensation on the heat exchanger or other parts of the system.

Various combinations of supply and return grille locations are reported on, as are temperature and humidity readings obtained with the different systems.

Final report will not appear for several months, but these preliminary findings offer much of interest.

is from 7 p.m. to 8 a.m. the following morning. Humidity readings are those taken in the living room.

Fig. 1 illustrates the effect of thermostat differential, long con-

tinuous operation of the compressor, and the frequent cycling of the compressor with a horizontal coil with the air flowing upwards through it, upon indoor relative humidities and temperatures. This

1. Relative Humidity Problems
2. Heat Gains From Various Duct Systems
3. Comparative Operating Costs

Table 3—Performance with Respect to Humidity

No.	Hours Compressor Operation	Temperature Drop Through Coil	Pounds* Condensate Removed	Coil Depth Rows	Average Daytime R.H. %	Night Humidity High %	Low %
A	21	23°	83.2	4	AM-50 PM-40	52	40
B	20	17.5°	51	4	44	62	45
C	24	18.5°	78.8	4	44	44	40
D	17.4	15.7°	37	2	50	54	50
E	14	12.5°	37.2	3	55	60	58
F	21.7	16.5°	69.4	3	46	52	46
G	19.3	21°	55.8	4	40	46	38
H	20	12°	73	4	40	48	40
I	17.7	22.5°	77	3	AM-55 PM-48	60	46
J	15.7	23°	63	3	45	64	45

*One pint of water weighs one pound.

was taken on a day when the outdoor temperature reached 98° at 2 p.m. and a low point relative humidity of 17% at 3 p.m.

"The outer circle shows the operations of the compressor in response to the thermostat, with the 'on' operations occurring when the line is away from the center. The center circle is the air temperature in the living room, and the irregular inner circle the relative humidity.

"The compressor operations curve shows very frequent and very short operations from 9 a.m. to slightly after 2 p.m. The thermostat in use from 8:45 a.m. to 10:30 a.m. had a very narrow differential and responded to very slight changes in room air temperature.

"The thermostat was under adjustment between 10:30 a.m. and noon, and even though the chart shows frequent operations during the period, actually the compressor operated almost constantly during this period.

"From noon until 2:15 p.m. the thermostat went back into normal operation with a slightly increased differential and at 2:15 p.m. was given a final adjustment or replaced by one with a wider differential," Nessell said.

"It will be seen from the chart that the frequent operations between 8:45 a.m. and 10:30 a.m. gave almost straight line temperature control and a relative humidity between 58% and 60% that held steady. In other words, during this period there was no drop in humidity as might be expected.

"When the machine operated almost continuously between 10:30 a.m. and noon the humidity dropped to slightly less than 50%, with the room air temperature elevating slightly as the heat gain increased.

"From noon on to 2:15 p.m. the humidity climbed to 54% and held steady between 52% and 54% without further reduction while the thermostat, with a slightly wider differential, still cycled the compressor with longer but still relatively short and frequent 'on' periods.

"After the thermostat had been

finally adjusted to a wider differential shortly after 2 p.m. the humidity dropped steadily to 40% or lower and remained at that level until the machine again started to cycle at about 9 p.m. due to the decrease in load. Along with the decrease in humidity during this period there was also a steady reduction in room air temperature. Incidentally, the thermostat setting was 78°.

"The portion of the humidity curve from 9 p.m. to 6 a.m. is worthy of study. After 9 p.m. the compressor began cycling with decreasing frequency until it operated about 15 minutes every hour.

"Immediately after compressor operation stopped, the relative humidity took a sharp increase. In some instances this increase amounted to 8% to 10% in about 20 minutes. The next compressor operation brought it back down again but the operation was too short to take it back down to its former level.

"In this manner there was a gradual step-up of relative humidity throughout the night from a low of 39% at 9 p.m. to a high of 63% at 6 a.m. The blower was operating continuously.

"The sharp humidity rises on compressor off-cycles at night suggests the re-evaporation of the condensate on the cooling coil into the moving air stream and redelivery into the house. This same performance characteristic has been noted on other jobs in varying degree. It appears to be more pronounced on those cooling units with the air blowing upwards through a horizontal or 45° mounted coil," Nessell commented.

"This chart suggests several things. One is that a compromise must be made between a close differential thermostat that will give close room air temperature control and poor dehumidification, and one with a relatively wide differential with improved relative humidity but somewhat wider control of room air temperature.

"It will be seen on the chart that air temperatures were not as even during the night from 9 p.m. to 7 a.m. as they were during the two

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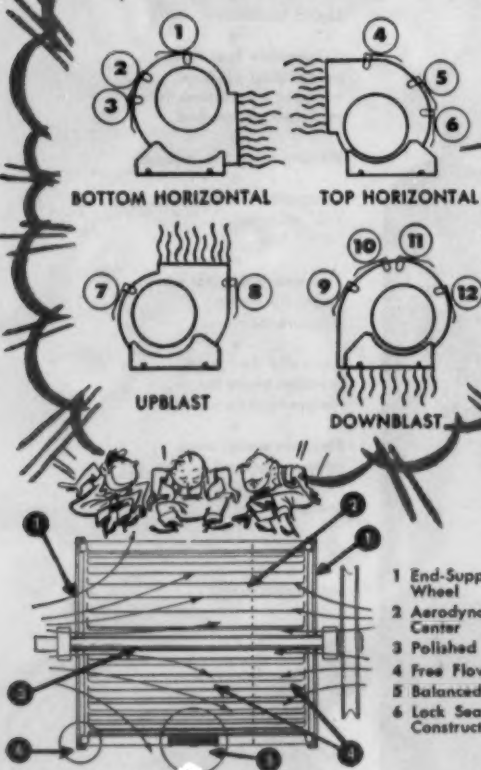
Here's a Completely New Idea In Blowers ...



Viking UNIVERSAL BLOWER with LOCK-ON Feet

... Offering Lower Unit Cost ...
Smaller and More Flexible Inventories
... Fast Delivery ... Shorter Lead Time

Here's How It Fills Your Needs Exactly



- Adaptable to all standard installation positions
- Lock-on foot design insures speedy production line assembly
- Permits twelve conventional motor mounting positions. Motor bracket designed so motor can be mounted on either side.

(Wheel shaft extends far enough on each side of scroll to permit pulley wheel to be mounted on either left or right side of blower.)

- Basic Scroll, Motor Mounting Bracket and Blower Wheel utilizes every new structural design improvement recently incorporated in conventional Viking Blowers to permit you to ship them installed, to expect many years of quiet trouble-free performance in your furnaces or air conditioners.

Rugged Wheel Design . . . Lock seamed end supports give blower wheel the strength needed to permit it to reach its destination point in tip-top condition. The end support principle and Vikinetic balancing make these units so quiet they have amazed everyone.

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1954

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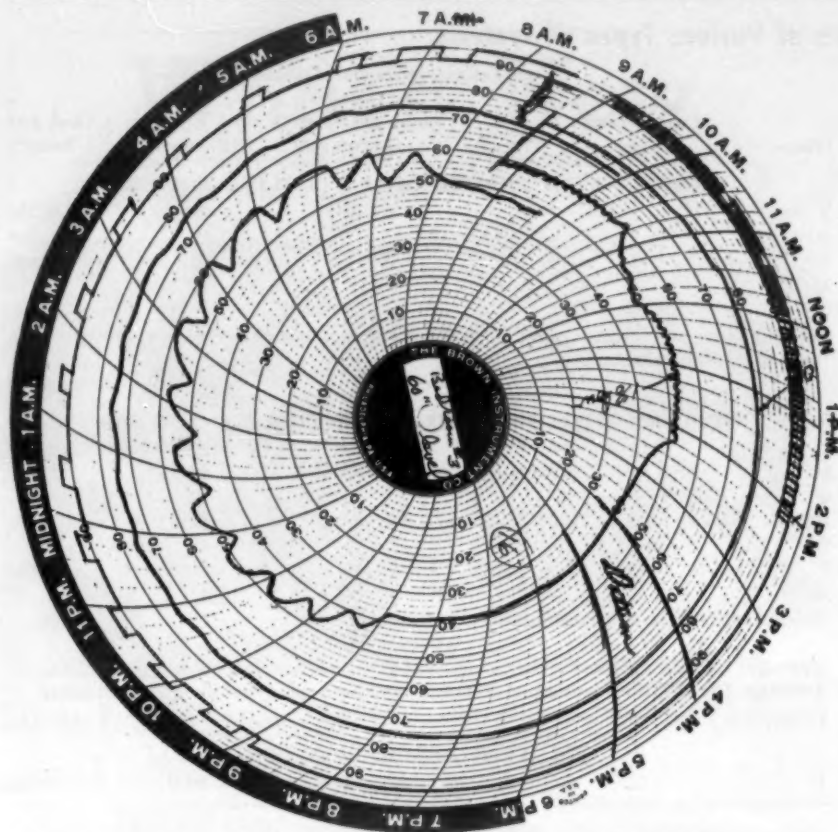


FIG. 1 illustrates the effect of thermostat differential, long continuous operation of compressor, and frequent compressor cycling on indoor relative humidity and temperature. Outer line of chart shows compressor cycling, unit being on when line is farthest from center. Middle line shows temperature; inner circle, relative humidity.

(Continued from preceding page) morning periods between 9 a.m. and noon.

"This chart also suggests that the capacity of the cooling equipment be such that it will operate for extended time intervals under close to outdoor design conditions. The long operating period from 2:15 p.m. to 9 p.m. resulting in excellent humidity and temperature conditions is indicative of this.

"Finally, it also suggests the use of a coil with good drainage characteristics to minimize the condensate re-evaporation. So far the evidence at the village indicates preferred performance from a vertical coil. Perhaps the coil should be by-passed completely during the off cycles of the compressor.

"A partial study of heat gain of the air passing through the ducts from the evaporator coil to the supply register has been completed. This study was based on an average discharge temperature from all the supply registers in the house, and no attempt made to evaluate the temperature gain per foot of duct.

"Since all the houses had approximately the same square feet of floor area, it was felt that a comparison of heat gain in the several types of duct systems would at least be indicative of the magnitude of those gains in each general type used.

"Further studies will recognize the additional total feet of duct runs for those houses with perimeter delivery as compared with a minimum amount supplying an outlet on the nearest wall of the rooms," Nessell said.

"It will be seen from Table 4 there are seven classifications of distribution systems. These differ

from each other in the location of the ducts and their insulation. The job number given in the table is for reference purposes only and has no relationship with similar job numbers in other schedules. The temperature values given are those at 4 p.m. on Datum Day.

"From the above it would appear that the greatest heat gain occurred from the ducts installed in the attic, with the exception of those installed in the slab or crawl space.

"The unfortunate circumstance about it is that the resultant loss in cooling capacity is irretrievably lost with no possibility of regain. The loss from ducts in any of the other locations, all of which are within the framework of the house below the ceiling, may have exerted some cooling influence.

"As for the ducts in the crawl spaces, the meager experience with them at the village does not warrant any conclusions.

"It might be well to point out that classification D ducting consisting only of a gypsum board furred ceiling space does not meet the fire code and NBFU Pamphlet No. 90 requirements when used for heating purposes.

"The wide variation in heat gain between jobs in each classification is undoubtedly largely due to the care with which the duct system was installed and the application of suitable insulation properly applied by the contractor.

"Job C in classification B had a single duct 25 ft. long installed in the attic completely uninsulated. This one duct had a temperature gain of 26° at 4 p.m. on Datum Day. This seems almost inexcusable," Nessell declared.

Table 4—Temperature Rise Through Ducts

A. METAL DUCTS IN ATTIC—INSULATED			
Job No.	Supply Air Temp. At Coil	Average Temp. At Supply Register	Average Heat Gain
A	54.5	56.2	1.7
B	57	58.8	1.8
C	55	62.6	7.6
D	57	59.8	2.8
E	63	65.1	2.1
F	63	72.2	9.2
G	54	61.8	7.8
H	59	61.5	2.5
B. METAL DUCTS IN DROPPED CEILING—INSULATED			
A	60	61.3	1.3
B	62	64	2
C	49	53.2	4.2
D	59	60.7	1.7
Average			2.3
C. METAL DUCTS IN DROPPED CEILING—NOT INSULATED			
A	59	63	4
B	54	56.5	2.5
C	59	61	2
Average			2.8
D. FURRED CEILING DUCT—GYPSUM BOARD ONLY			
A	61	61.7	.7
B	57	57.8	.8
Average			.75
E. FLOOR SLAB EMBEDDED DUCTS			
A	67	71	4
B	52	60	8
Average			6
F. CRAWL SPACE DUCTS—METALS, INSULATED			
A	60.5	65.3	4.8
G. CRAWL SPACE PLENUM—NO DUCTS			
A	66.5	70.7	4.2

*In addition to the metal ducts installed in the dropped ceiling, this house had an uninsulated round duct in the attic 24 ft. long with a temperature rise of 26°.

Residential Air Conditioning

"The 22 jobs of the village may be grouped as follows:

"By compressor location:

"15 had the compressors indoors in the living area.

"5 had the compressor outdoors, in the garage or otherwise, not in the living area.

"2 had the compressor in the attic.

"By condenser cooling:

"6 had air-cooled condensers, one also having an auxiliary water-cooled condenser using city water. Of these, three had 3-hp. compressors and three had 2-hp. ones.

"1 was cooled with an evaporative condenser and was 2 hp.

"2 were water-cooled with natural-draft cooling towers, both of vertical redwood type. One had a 3-hp. compressor, the other a 2-hp. one.

"5 were water-cooled with forced-draft cooling towers. One had a 3-hp. compressor, the others 2 hp.

"7 were water-cooled with induced-draft cooling towers. All were 2-hp. size.

"By power:

"5 had 3-hp. motors.

"14 had 2-hp. motors.

"2 had two 1-hp. motors each.

"1 was an absorption system using natural gas.

"The preliminary reports on individual houses indicated that operating costs varied from \$0.80 to \$1.46 per 24-hour day, during the months of the survey, depending upon the house and the weather, the average being about \$1.06. All are based upon electricity at 1.62¢ kwh., water at 25¢ per 1,000 gals., and gas at 60¢ per 1,000 cu. ft.

"To compare houses more exactly, costs were also adjusted for house size and weather severity. These gave the cost/24-hours/square foot of floor space/degree outside temperature exceeding 80° indoor design temperature. This index varied from \$.0000835 to \$.000177, with a village average of \$.000125.

"Thus, one cent/day cooled roughly 80 sq. ft. of floor space under Austin design conditions.

"A better index of comparative costs is presented in Table 5, based upon datum hour power, water, and gas consumption together with revised heat gain estimates based

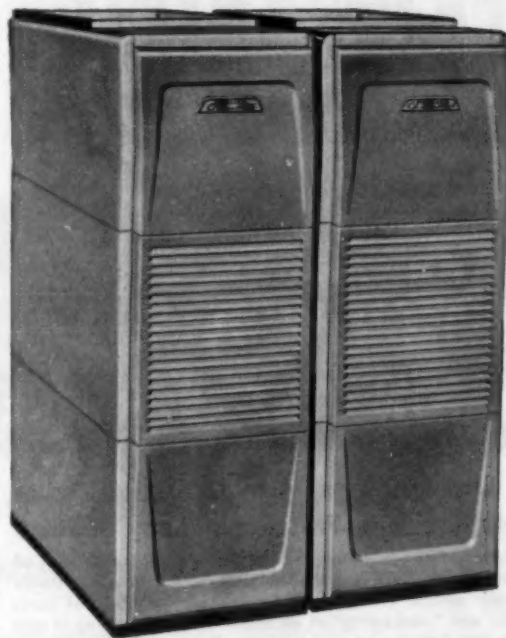
(Continued on next page)

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Just take a look at this line-up: It's designed for maximum efficiency, it's beautifully styled, and it's quality-built. What's more, it gives you everything you need to sell the rapidly expanding cooling market: Combination heating and cooling units. Air-cooled condenser units. Self-contained units. Recessed summer conditioner.

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Type 224-906 Companion Units — For all-season air conditioning. The heating unit is oil- or gas-fired (convertible) — with 80,000, 100,000, 125,000, and 150,000 Btu input. The Type 906 cooling unit is available in 2-hp and 3-hp sizes — and can be installed with any winter air conditioner. Has own blower. Each size of the heating unit may be interchanged with either of the cooling models, for real flexibility.



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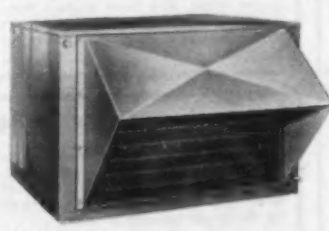
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Type 128-928 Combination Heating and Cooling — In one compact casing. For closet, basement or utility room installation, easily accessible from front. Heating is gas- or oil-fired, 100,000 Btu input. Cooling is 2 or 3 hp.



Type 908 Air-cooled Condensing Unit — For use with Type 900 coil unit. Weather-proof for outdoor installation. Quiet, efficient. Available in 2, 3, and 5 hp. Type 902 remote water-cooled condensing unit also available.



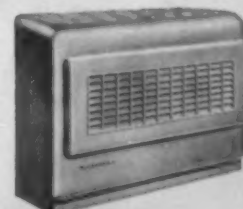
Type 907 Air-cooled Condenser — For converting water-cooled units to air-cooled. Uses air-conditioning unit compressor. Weather-proofed for outside installation. Available in 2, 3, and 5 hp.



Type 903 Self-contained Cooling Unit — Can be installed with any new winter air-conditioning system — or added to existing systems. Contains complete enclosed refrigeration system in one compact package. 2, 3, and 5 hp. Water-cooled.



Type 904 Self-contained Cooling Unit — For installation in stores, restaurants, etc. — or with duct systems in homes with radiator or radiant heat. Complete refrigeration system with blower and filters. Can be installed with steam coil for heating. Available with discharge grille, or can be used with ductwork. 2, 3, 5, 7½, 10 and 15 hp.



Type 910 Recessed Summer Conditioner — For cooling new and old homes, motels, apartments, office buildings, and homes with radiator heat. Installs under window between two standard studs. Air-cooled, requires no plumbing connections. ½-hp. and 1-hp. sizes.

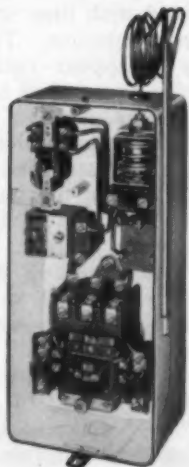
COMBINATION CONTROL PANEL with Solenoid Starter

Here is a typical Allen-Bradley control panel for refrigeration and air conditioning. It consists of an Allen-Bradley Bulletin 837 adjustable thermostat, a Bulletin 836 high pressure cutout, a Bulletin 600 small manual starter, and a Bulletin 709 Size 1 solenoid starter with two thermal overload relays.

For full information about the Allen-Bradley line of refrigeration and air-conditioning controls, please write for Bulletin 836-837.

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ALLEN-BRADLEY
QUALITY
SOLENOID MOTOR CONTROL



Austin Village --

(Concluded from preceding page)
upon National Warm Air and Air Conditioning Association Manual 11 (1954), and actual indoor and outdoor temperatures.

"The computed heat gains used are not entirely satisfactory because building practice in the south and southwest varies from that covered in the manual.

"The operating costs given are in cents per hour/10,000 B.t.u.h. of design heat gain, corrected for temperature difference between outdoors and indoors. Thus, they approximate the cost per hour to remove 10,000 B.t.u. from the structure during the hot hours of the day in mid-summer 1954 in Austin, Texas. Using these values to compute season costs is not recommended," cautions Nessell.

"Air-cooled condensers are subject to spring dust storms, but are relatively easily cleaned. Water-cooled condensers are subject to scale formation by minerals in the water plus air-borne dust caught in the tower. Thus, the performance of these water-cooled condensers, new and free of scale, is likely to diminish faster than that of air-cooled ones," Nessell said.

"The performance of both types of condenser given here is applicable only to Austin, Texas with its particular temperature and humidity relationships.

Summarizing, Nessell said,

Table 5—Relative Operating Costs of Various Types of Systems

—Temperatures at Datum Hour—						—Temperatures at Datum Hour—					
House	Compressor Hp.	Outside	Indoors		Cost per hour*	House	Compressor Hp.	Outside	Indoors		Cost per hour*
			Usually at thermostat	Difference					Usually at thermostat	Difference	
SYSTEMS WITH AIR-COOLED CONDENSERS											
A	3	94.5°	75.5°	19°	2.26¢	J	3	95°	76°	19°	2.38¢
B†	2	109°	87°	22°	2.48¢	K	2	96.5°	77°	19.5°	1.70¢
C	3	95°	76°	19°	1.60¢	L*	2	102°	76°	26°	1.09¢
D‡	3	97°	79°	19°	2.41¢	M	2	100°	77°	23°	1.67¢
E‡	2	98°	76°	22°	1.61¢	N	2	97°	80.4°	16.6°	2.02¢
F**	2	87°	79°	8°	3.60¢	*Evaporative condensate used in cooling tower; two compressors, one running day and night continuously.					
						Average 1.77¢					
*10,000 B.t.u.h. design heat gain (applicable only to 3-4 p.m. in mid-summer 1954 in Austin, Texas.											
†Condenser air drawn from above roof.											
‡Poorly insulated house; condenser exposed to afternoon sun.											
‡Condenser wet with evaporator condensate.											
**Condenser air drawn from uninsulated garage; excess cycling by thermostat; auxiliary water-cooled condenser. House was unoccupied during tests.											
Average (excluding F) 2.07¢											
SYSTEM WITH EVAPORATIVE CONDENSER											
G	2	99°	82°	17°	1.91¢						
SYSTEMS WITH NATURAL DRAFT COOLING TOWERS											
H*	2	104°	81°	23°	1.53¢						
I	3	93°	79°	14°	3.25¢						
*Probably the best insulated and oriented house in the village.											

SYSTEMS WITH FORCED DRAFT COOLING TOWERS					
J	3	95°	76°	19°	2.38¢
K	2	96.5°	77°	19.5°	1.70¢
L*	2	102°	76°	26°	1.09¢
M	2	100°	77°	23°	1.67¢
N	2	97°	80.4°	16.6°	2.02¢
*Evaporative condensate used in cooling tower; two compressors, one running day and night continuously.					
Average 1.77¢					
SYSTEMS WITH INDUCED DRAFT COOLING TOWERS					
O	2	100°	78°	22°	2.31¢
P	2	103°	81°	22°	1.68¢
Q	2	96°	80°	16°	1.94¢
R*	2	102°	72.5°	27.5°	1.40¢
S	2	96°	75°	21°	1.27¢
T	2	103.5°	80°	23.5°	1.57¢
U	2	100°	85°	15°	2.08¢
*Compressor ran day and night continuously.					
Average 1.75¢					
Average for all systems employing water for condenser cooling = 1.93¢.					
Average for all mechanical systems, regardless of type or circumstances = 1.90¢.					
SYSTEM WITH ABSORPTION COOLING					
V	....	96°	77°	19°	1.49¢

*10,000 B.t.u.h. design heat gain (applicable only to 3-4 p.m. in mid-summer 1954 in Austin, Texas).

†Condenser air drawn from above roof.

‡Poorly insulated house; condenser exposed to afternoon sun.

§Condenser wet with evaporator condensate.

**Condenser air drawn from uninsulated garage; excess cycling by thermostat; auxiliary water-cooled condenser. House was unoccupied during tests. Average (excluding F)

SYSTEM WITH EVAPORATIVE CONDENSER

G 2 99° 82° 17° 1.91¢

SYSTEMS WITH NATURAL DRAFT COOLING TOWERS

H* 2 104° 81° 23° 1.53¢

I 3 93° 79° 14° 3.25¢

*Probably the best insulated and oriented house in the village.

"Much of the equipment was operating at a higher noise level than the 40 decibels suggested in the FHA requirements. Placing a noise level ceiling on cooling equipment and none on heating equipment is inconsistent since some of the noisiest parts are used for both.

"Installations with a lower noise level will depend upon the united efforts of the manufacturers

and the builders and architects. While the manufacturer should have quiet equipment, the builder and architect must arrange to physically and acoustically isolate the equipment from the structure.

"The importance of accurate heat gain calculations is emphasized. They are an essential guide when selecting equipment capacity to give the best combination of

air cooling and dehumidification. Recommended procedures for making these calculations should include 'U' factors for every type of construction used in mild climate areas.

Building Practices Vary

"Builders and architects must give greater attention to the orientation of the house on the lot, and so arrange the glass areas that the heat gain is minimized.

"The village installations were designed primarily for cooling. Heating is of equal, if not greater importance, particularly in the north country. Some of the village installations would be poor heating performers in vigorous weather. A compromise must be reached in the design of the system to assure equally good operation for either heating or cooling.

"The evidence indicates a greater loss of cooling capacity when the ducts are installed in the attic than when placed below the ceiling. Information concerning losses from ducts in a crawl space or embedded in a concrete slab floor is still not conclusive.

"On many village installations there was a pronounced humidity regain in room air immediately after the end of an on-cycle of the compressor that appeared to be greater with equipment with the evaporator coil mounted horizontally or at a 45° angle. This should be eliminated or minimized."

Air-Cooled vs. Water-Cooled Unit Operating Costs

"A comparative analysis of the operating cost of equipment with air-cooled and water-cooled condensers indicates that the air-cooled units cost slightly more to operate in Austin. This observation applies to Austin only, and may not hold true in areas with other climatic conditions.

"Further, it applies only to clean air-cooled condensers and to water-cooled equipment with clean water passes that are not encrusted with lime and other water-borne deposits. This advantage may disappear rather quickly in Austin because of the hardness of the water.

"Only one installation had an installed waste line for bleeding away water to limit the mineral concentration in the tower and condenser system.

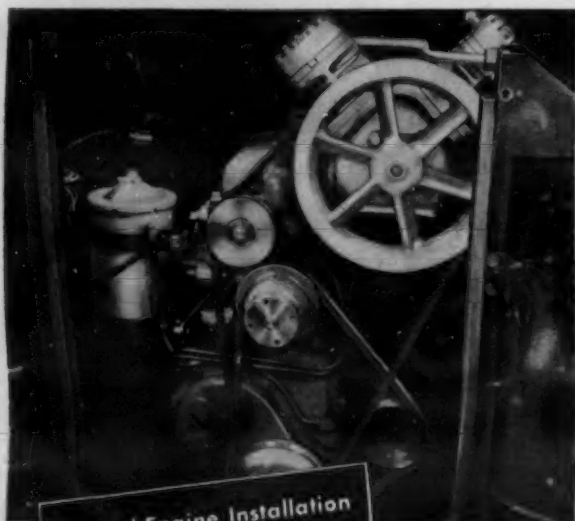
"The installing dealer needs to be strengthened as the intermediary between the user and the manufacturer. Too often he is deficient in skill and know-how and lacks a feeling of responsibility.

"The performance of some of the village installations would have been considerably improved had better dealer attention been given. To note—one air-cooled condenser was installed where it got the afternoon sun, and one 26-ft. long completely uninsulated cooling duct installed in an attic. Another condenser installed remotely was con-

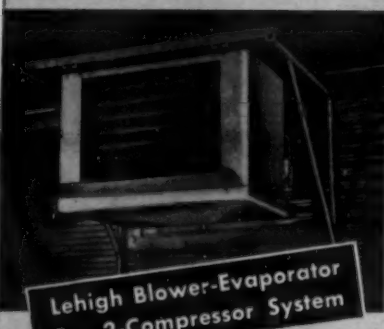
nected to the compressor with inadequately sized tubing.

"Similarly, in many installations inadequate air filter sizes were selected by the dealer, leading to premature clogging. Most were extremely dirty with construction debris from initial operation."

(This concludes the report of C. W. Nessell, but next week's issue will contain the opening of Ned Cole's report.)



Typical Engine Installation



Lehigh Blower-Evaporator For 2-Compressor System



Lehigh Over-Cab Mounting



Typical Plate Blower For 2-Compressor System

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For on-the-road and standby operation. The right system for continuous city delivery or numerous pick-up and delivery stops. Package includes all operating and mounting components.

SINGLE COMPRESSOR SYSTEMS

For on-the-road refrigeration only. Compressor operated by truck engine. Fully automatic controls. Kit contains five major components to be installed by the body builder or user.

★ REMOTE TYPE TRUCK UNITS — 3/4 H.P. thru 3 H.P.



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Lehigh Manufacturing Co.

DIVISION OF LEHIGH FOUNDRIES, INC.

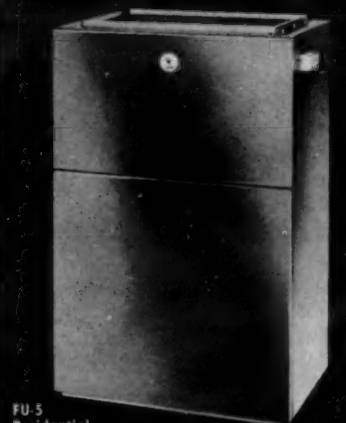
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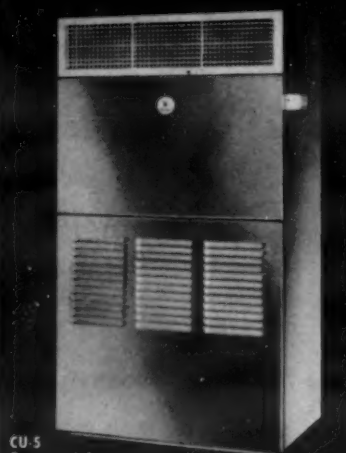
- A complete line of belt-driven units — 1/4 H.P. thru 5 H.P.
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CU-5 Commercial

Newest additions to the famous "Weatherwise" line, these self-contained complete package units offer modern cabinet styling plus these advanced engineering features: one and three-phase hermetic compressors, counterflow cleanable type condensers, aluminum fin evaporators with copper tube and capillary feed, and new cooling-heating switch controls suitable for remote installation and use with standard thermostats. Also available without plenum and fan, or equipped with steam coils.

AUG. G. BARKOW MFG. CO., INC.
2230 So. 43rd St., Milwaukee 15, Wis.

What's New

When requesting further information on new products, please use "Information Center" form.



20-In. Fan, 'Adjusto-Matic' Stand Offered by Lau

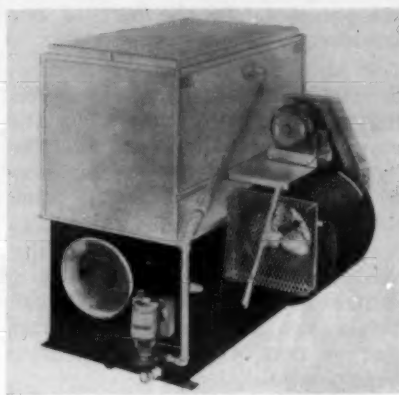
—KEY NO. E-230—

DAYTON—A new "Porta-Breez" combination 20-in. fan and patented "adjusto-matic" stand has been announced by the Lau Blower Co. as an addition to its 1955 line.

Manufactured of one-inch seamless tubular steel, the new stand can be set at any height, from 17 in. to 58 in. high, by simply raising the fan to the desired position and leaving it there. The secret is in the "Magic-Lok," which automatically holds the fan at the desired height. To lower the fan, it is raised to full height and will drop smoothly and quietly to the 17-in. position.

In its "Adjusto-matic" stand, the fan has unlimited 360° rotation. Thus the combination of adjusting stand and free-rotation results in a versatile fan which can be used for window intake or exhaust, and to direct air at floor or ceiling.

The new "Porta-Breez" fan will draw air at the rate of 2,500 c.f.m.



Maximum Capacity In Minimum Space Claimed

—KEY NO. E-231—

BALTIMORE—A new line of "Mighty-Mite" evaporative condensers and cooling towers in capacities ranging from 10 to 50 tons with "Freon-12" base rating has been introduced by Baltimore Aircoil Co., Inc., here.

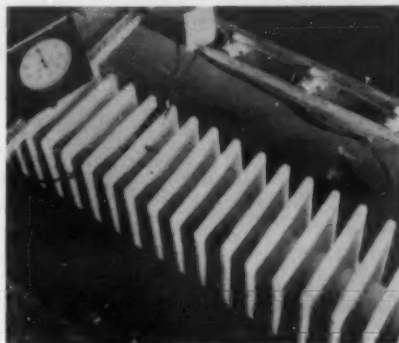
The result of more than four years of research and development, they are said to offer maximum capacity with minimum space requirements.

Both the evaporative condensers and cooling towers are constructed of heavy gauged steel throughout. All moving parts have been removed from the moist air stream to increase life and serviceability.

The company said that special construction methods it developed insure water-tight casings that may be easily disassembled in the field. Casings, sump pans, and fan scrolls are covered internally with BAC special mastic that is corrosion and abrasion resistant.

All moving parts are exposed or within easy reach for servicing.

Casings are finished with BAC zinc-chromatized aluminum paint.



Square Finned Coils Introduced by Frick

—KEY NO. E-232—

WAYNESBORO, Pa.—An improved finned pipe coil, which can be grouped over the aisles to simplify defrosting, has been introduced by Frick Co. It is used with either direct-expansion ammonia or brine, and is furnished with drip pans when desired.

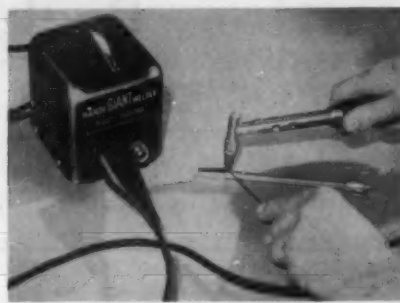
Fins measure 7 in. sq. They are made of 14-gauge steel, split at the center into leaves, which are spread in two directions and later forced together under 20 tons of hydraulic pressure until they make contact with the pipe. The pipe is of 2 in. size, and is further bonded to the fins when the assembly is hot-dip-galvanized.

Coils are available in lengths of 20 ft. as well as shorter lengths.

The fins are placed on centers of either 1 or 1½ in. Standard lengths for the pipes are 5 ft., 6 ft., 8 in., and 10 ft.

Versatile Electric Welder Eliminates Shock Hazard

—KEY NO. E-233—



DETROIT—An electric welder which is claimed to have no shock hazard and uses only 6 volts is offered by Caulhorn Mfg. Co.

Called Handy-Giant, the welder will also do brazing and soldering as well as etch and cut holes in metal, and can be used from car, truck, or tractor batteries. Retail price is \$49.50.

6-Ft. Hoist Support Can Handle One Ton

—KEY NO. E-234—

EATON, Pa.—A support for hoists for lifting or lowering equipment indoors or out has been introduced by B. E. Wallace Products Co. here.



Called "Magic Pole Unipod," it can support 2,000 lbs., can be closed to 6 ft. 4 in. for storage or easy carrying, and can be extended to 10 ft. 2 in. in increments of 6 in. The support, which weighs 22 lbs., is locked into any position by a built-in outrigger.

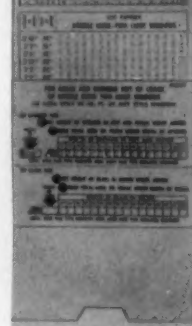
Two 20-ft. guy lines are included as standard equipment. Each line will support over a ton.

Magic Pole retails for \$31.90.

Pocket Calculator Figures Area, Crackage

—KEY NO. E-235—

LAWRENCE, Mich.—A direct reading calculator which is said to obtain areas of floors, ceilings, walls quickly and accurately has been introduced by Paul S. Morton Engineering Service.



Areas of windows that should be treated as glass, either by opening size or glass size, are also obtainable, along with the lineal feet of crack.

This new device operates like a slide rule, yet reads direct like a table.

Information Center

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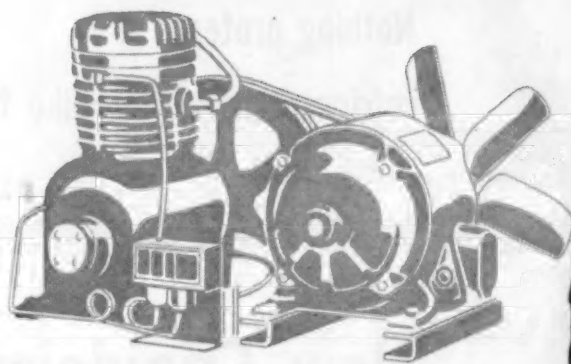
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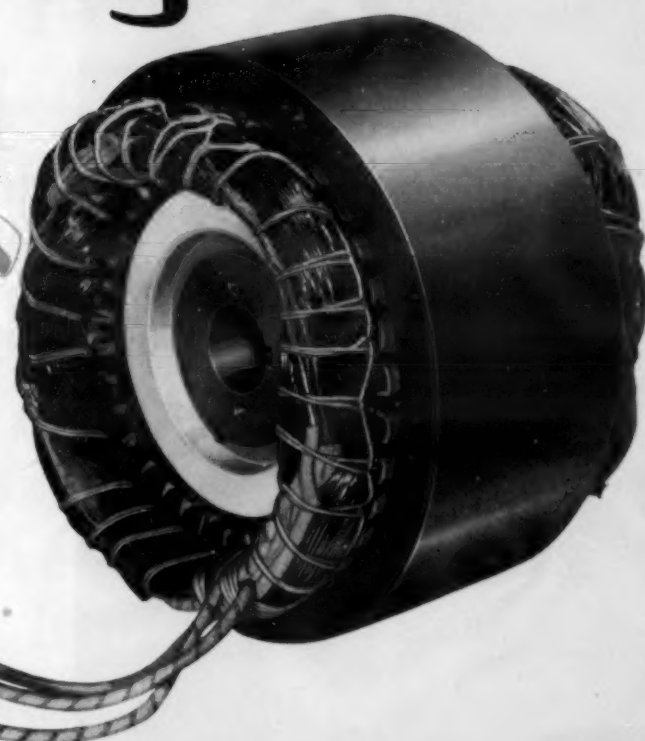
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DETROIT 26, MICHIGAN

seal it! forget it!



The motor is no problem when you use A. O. Smith hermetics in your air conditioning compressors



CUSTOM-ENGINEERED to operate inside hermetically sealed compressors... carefully built under controlled conditions — these A. O. Smith motors are ready to prove their dependability in your equipment.

Picture a motor manufacturing setup as clean as a food processing plant — with humidity and temperature precisely controlled the year around. That's the picture in A. O. Smith's hermetics department. No dust or dirt to stop these motors when they work for you.

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Refrigeration Problems and their solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Choosing the Compressor Oil (1)

The answer to the question of what oil to use in a compressor on any certain installation can be given in a very few words: *Where possible, use the oil specified by the manufacturer of the compressor.*

Some compressor manufacturers supply the oil to be used in their compressors, in sealed service cans, through their distributors, dealers, or authorized refrigeration supply wholesalers. Other manufacturers do not sell oil for service purposes, but specify the oil by type and name of one or more oil refiners. In either case, the compressor manufacturer definitely specifies the oil to be used.

He has very good reason to specify a particular oil. He chooses the oil that best suits his particular design of compressor. Certainly no one should know as well as he

the factors that determine the selection—bearing loads, clearances, temperatures of the parts, oil return design, seal requirements, oil pump characteristics, and the materials of which the parts are made.

INCORRECT OIL RESPONSIBLE FOR MUCH COMPRESSOR DAMAGE

Quite understandably, the compressor manufacturer is very "fussy" about the oil used in his compressor. He has seen compressor after compressor returned to him as "defective" that contained some unauthorized oil that was entirely unsuitable for that compressor and which was directly responsible for the damage that caused the compressor to be condemned as "defective."

No wonder that the compressor manufacturer stipulates that if an oil other than that specified by him is used in his compressor, he will void the warranty on the compressor and not be responsible for its repair or replacement.

If the service engineer could see

some of the compressors that come into the returned goods receiving departments of compressor manufacturers, he would be sympathetic to the manufacturer's insistence on the oil used in his product.

So if a service engineer will always use the oil specified by the manufacturer of the compressor, he will rarely go wrong in his oil selection.

WHY MANUFACTURER'S OIL IS NOT ALWAYS USED

Without doubt, the service engineer should use the oil specified by the compressor manufacturer if it is at all possible, but in many instances it is extremely difficult for him to do so.

In the first place, the service engineer, particularly one who services many makes and types of refrigeration and air conditioning equipment using various makes, types, and sizes of compressors, finds it impractical to stock every make and type of oil, much less have them all with him in his service truck.

There are other factors that add to his stock difficulties:

He would have to have, and keep in his truck, a list of all of the makes, types, and sizes of compressors that he services or may be apt to service, and the corresponding type of oil for all those compressors. To the best of our knowledge, no such list exists.

If he is a dealer for the particular make of equipment he is servicing, he has easy access to the manufacturer's "genuine" oil. The "genuine" oil for other makes may be difficult to obtain locally. Most service companies, and dealers also for that matter, find it more convenient and time saving to concentrate their purchases of installation and service supplies from one or two favorite refrigeration supply wholesalers.

He may be servicing an "orphan" make of compressor, although in late years, this is becoming less likely.

Even for the same make and model compressor, an oil of different viscosity may be used for a low temperature application, such as a freezer, than for a higher temperature application such as on an air conditioning installation.

Some belt-driven compressors may be used on either "Freon-12" or "Freon-22," but with an oil of different viscosity specified for each of the two refrigerants.

Most manufacturers of complete refrigerating or air conditioning systems, self-contained or the remote type, hermetic or the open type, do not make their own compressors, but buy them from one of a dozen or so compressor manufacturers.

All of these manufacturers of complete systems or units have their own sales and distributing organizations. Their dealers rarely have direct contact with the original manufacturer of the compressor itself.

In fact, many of the dealers do not have their own service departments, but contract their installation and service to independent service companies. After the warranty or free-service period expires, it is anyone's guess as to who will service those units.

This picture is not intended to encourage anyone to use a compressor oil other than that specified by the manufacturer of that compressor, as witness the first paragraph of this article. But we may as well face the fact that there are several very practical reasons that make it difficult to always use the same oil in service as that in the compressor when it left the factory of its manufacturer.

A FEW OIL TYPES IN STOCK

What then does the dealer's service department or the independent service organization do? He stocks three or four, at most, rarely more than six, types of compressor oils, and services all makes and types of refrigeration and air conditioning equipment out of this limited stock of oils. What are these types?

1. An oil for reciprocating compressors for "Freon-12" on commercial and air conditioning installations. This oil probably represents the bulk of his usage, for he also uses it for "Freon-11," "Freon-114," and perhaps methyl chloride also. The viscosity of this

oil is usually 300 to 325 SSU.

2. An oil for reciprocating compressors for "Freon-12" on freezers, ice cream cabinets, and other medium-low temperature jobs. He also uses this oil in all "Freon-22" and sulphur dioxide compressors; and perhaps for ammonia compressors also if he works on only a few small ammonia jobs occasionally. This oil will have a viscosity of about 150 to 160 SSU.

3. In addition to No. 2, he may also stock an oil especially dewaxed, with low floc test for low temperature systems using "Freon-12" or "Freon-22." This oil will also have a viscosity of about 150 SSU.

4. If he does a good deal of ammonia work, especially compressors of above 25 hp., he may stock a special ammonia oil. It will be similar to No. 2 but may be somewhat darker in color, indicating the presence of more unsaturated hydrocarbons.

5. He may have a special, high viscosity oil for rotary compressors. This will probably be a "special" oil for some particular system using a rotary compressor, on which he specializes.

6. If he still services a lot of old methyl chloride systems, he may have a stock of 300 to 325 SSU "white oil" or one that has very little tint.

A SEPARATE MOTOR OIL

If he is wise, he will stock a special No. 10 motor oil, rather than to use any of the compressor crankcase oils for the bearings of motors. There was a time when compressor oil could be used for motor bearings, but compressor oils have changed, and it is no longer good practice to do so.

The motor oil can be used for most water pumps used with evaporative condensers and cooling towers. Be sure to check the instructions supplied with these water pumps, for some may specify a steam cylinder oil or water soluble oil.

Next week we will discuss the characteristics of compressor oils and their effect on the selection of an oil for the "typical" stock of oils kept by a service engineer.

(To Be Continued)

Nothing protects a
refrigerating system like this

New Frigidaire Thuro-Drier Dehydrator

Removes up to 75% more moisture than other
dehydrators of similarly rated capacity!

New, advanced bead-form dehydrating agent used by Frigidaire has far more drying ability than other commonly used dehydrating agents. Actual tests prove that its higher density makes it far more efficient.

The Frigidaire "Thuro-Drier" has many outstanding features—

- High absorption capacity
- Minimum powdering or dusting
- Exceptionally low pressure drop
- Absorbs acids and salts
- Acts as filter as well as dehydrator
- Tight seal plastic end caps

It is effective with Freon 12, Freon 22, and Methyl Chloride refrigerating systems.

See your Frigidaire Parts Distributor today—there's one near you. Always specify—always use genuine precision-built Frigidaire Parts and Accessories.

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GENUINE JOE SAYS:

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BEARINGS ARE
STEEL-BACKED
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MARSH Instruments

THE SERVICEMAN LINE of Testing
Gauges, Testing Thermometers, Tim-
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PRESSURE GAUGES and Dial Ther-
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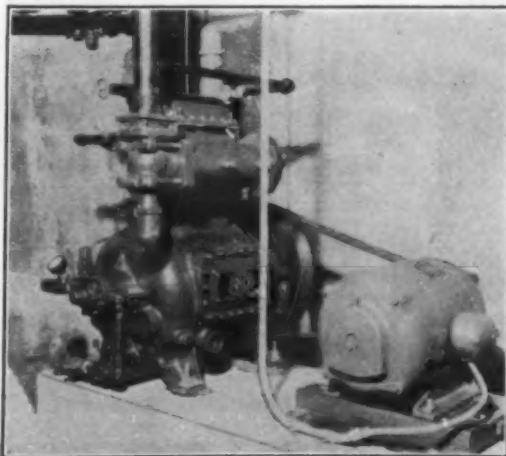
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Compressors

The industry's most
complete line: 83 types
and sizes—for Freon, am-
monia and other refriger-
ants. Specify Frick, and
you're sure of getting
exactly the machine you
need. Write for literature
and estimates now.

Frick Co.



NEMA Firms Sell 40,321 Freezers In Nov.

Summary for November, 1954

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen foods.

NOVEMBER (22 Companies)

Sizes	Domestic	Canadian	Foreign	Total
1. Less than 5 cu. ft.				
Chest Models	*	*	*	*
Upright Models	†	†	†	†
2. 5 and 6 cu. ft.				
Chest Models	*646	*....	*10	*656
Upright Models	†	†	†	†
3. 7 and 8 cu. ft.				
Chest Models	1,723	98	178	1,999
Upright Models	†	†	†	†
4. 9 and 10 cu. ft.				
Chest Models	‡	‡	‡	‡
Upright Models	†650	†....	†5	†655
5. 11 and 12 cu. ft.				
Chest Models	14,726	136	1244	15,006
Upright Models	4,684	43	147	4,874
6. 12.5 to 17.4 cu. ft.				
Chest Models	9,781	83	79	9,943
Upright Models	6,313	125	129	6,567
7. 17.5 to 21.4 cu. ft.				
Chest Models	3,623	148	35	3,806
Upright Models	5,015	25	56	5,096
8. 21.5 to 30.4 cu. ft.				
Chest Models	904	5	3	912
Upright Models	\$807	\$....	\$....	\$807
9. 30.5 to 40.4 cu. ft.				
Chest Models .....	....	....	....	....
Upright Models	§	§	§	§
10. 40.5 to 50.4 cu. ft.				
Chest Models .....	....	....	....	....
Upright Models .....	....	....	....	....
11. 50.5 to 60.4 cu. ft.				
Chest Models .....	....	....	....	....
Upright Models .....	....	....	....	....
12. 60.5 cu. ft. and over				
Chest Models .....	....	....	....	....
Upright Models	§	§	§	§
Total Chest Models ..	21,403	370	549	22,322
Total Upright Models ..	17,469	193	337	17,999
Total All Models	38,872	563	886	40,321

*Chest models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright models for items 1-2-3-4 combined because of possible disclosure of individual company data.

‡Chest models for items 4 & 5 combined because of possible disclosure of individual company data.

§Upright models for items 8, 9, 11 & 12 combined because of possible disclosure of individual company data.

BUY DIRECT---SAVE

If you are selling home freezers and would like your own private label, we can quote you direct prices on single units that defy comparison.

We are private label brokers of nationally-advertised merchandise and sell thousands of freezers every year to dealers who prefer to save the difference in cost between their own private label and the high distributor or dealer prices paid just for the brand name. Write for specification sheets, pictures and prices, and compare this familiar merchandise with your present inventory, dollar for dollar.

TRI-STATE DISTRIBUTORS
BOX 836—Lima, Ohio

USED ICE PLANT EQUIPMENT

- 2—Vilter Ammonia Compressors, duplex units, each unit consists of two eight-cylinder compressors direct connected to a 200 HP, 440 volt, 60 cycle electric motor.
- 1—Vilter Ammonia Compressor, duplex unit, consisting of two twelve-cylinder compressors direct connected to a 150 HP, 440 volt, 60 cycle electric motor.
- 2—30 ton Vilter Pacice machines.
- 1—36" dia. x 16' Vilter Ammonia Condenser with 2—36" dia. x 16' receivers, with stand.
- 1—36" dia. x 16' Vilter Ammonia Condenser with 1—36" dia. x 16' receiver, with stand.
- 1—General Electric motor control center.

UNITED CONSTRUCTION CO.
P. O. BOX 299 WINONA, MINNESOTA
Phone — Winona 5226

Nashville Sales--

(Concluded from Page 1, Col. 2)

Of the latter group, 3,503 units were water heaters (almost exactly two-thirds of all water heaters sold) and 1,101 were freezers (more than half of all freezers sold). The other three appliances did not figure strongly in this group, representing less than 10%.

The number of appliance dealers reporting was slightly higher than in 1953—98 as compared with 87. However, the 11 additional "dealers" sold only 21 of the listed appliances between them.

The top two retailers dominated

Nashville Dealer Sales

Dealer's Position	Ranges	Water Heaters	Refrigerators	Food Freezers	Clothes Dryers	Total
1	496	348	583	424	136	1,985
2	272	654	319	73	420	1,738
3	320	28	361	12	32	750
4	254	7	314	12	5	592
5	185	10	287	15	53	550
6	136	34	226	36	31	432
7	144	32	163	21	31	391
8	145	...	201	3	...	349
9	153	19	129	2	30	333
10	151	7	162	1	...	321
11	144	3	206	1	8	305
12	145	4	139	12	4	304
13	50	54	87	90	14	295
14	91	17	162	4	15	289
15	104	15	150	5	6	280
16	105	5	134	4	1	249
17	52	135	45	3	6	241
18	94	9	126	4	1	234
19	81	27	79	11	21	219
20	107	4	98	...	1	210
21	99	7	86	1	2	195
22	84	4	86	3	15	192
23	61	7	96	7	21	192
24	79	3	94	2	1	182
25	89	8	66	5	4	172
26	60	7	68	8	7	170
27	68	14	82	3	1	168
28	61	5	77	1	...	144
29	50	9	61	11	11	142
30	26	28	64	8	5	131
31	61	8	55	4	1	129
32	46	4	64	6	4	124
33	56	6	44	13	...	119
34	40	5	43	6	7	101
35	40	3	30	5	21	99
36	25	10	35	2	20	92
37	32	14	21	2	...	89
38	45	10	28	2	1	86
39	26	5	31	13	4	79
40	39	9	26	1	...	75
41	32	8	23	2	8	73
42	30	2	26	4	8	70
43	25	3	29	2	4	63
44	24	3	27	3	4	61
45	26	5	25	2	2	60
46	28	...	21	3	...	51
47	27	3	15	1	2	48
48	21	1	24	1	...	47
49	25	...	17	3	1	46
50	19	3	18	8	1	46
51	16	1	20	1	7	45
52	23	3	17	...	...	43
53	20	3	18	...	...	41
54	18	...	20	...	...	38
55	15	2	15	2	4	36
56	13	2	11	1	5	31
57	10	1	17	1	...	29
58	12	4	9	2	2	29
59	14	1	11	2	...	28
60	13	2	11	2	...	28
61	11	...	15	...	2	26
62	12	2	11	...	...	25
63	11	...	13	...	...	24
64	8	...	13	1	...	22
65	8	3	10	...	...	21
66	6	...	12	2	1	21
67	11	...	9	...	1	21
68	10	2	9	...	...	20
69	11	...	9	...	...	20
70	7	1	8	2	1	19
71	12	...	7	...	...	19
72	10	...	6	...	1	17
73	7	1	9	...	...	17
74	11	...	6	...	...	17
75	12	...	3	1	...	16
76	8	...	7	...	...	15
77	5	2	7	...	...	14
78	9	...	3	...	...	12
79	3	5	2	2	...	12
80	4	4	2	2	...	12
81	3	...	8	...	...	11
82	5	...	5	...	...	10
83	4	1	3	...	...	8
84	4	...	4	...	...	8
85	...	2	3	1	...	6
86	3	...	1	...	...	6
87	3	...	2	...	...	5
88	1	...	2	2	...	5
89	2	1	1	...	...	4
90	2	...	1	...	...	2
91	1	...	1	...	...	2
92	1	...	1	...	...	2
93	...	1	...	...	...	1
94	...	1	...	...	...	1
95	...	1	...	...	...	1
96	...	1	...	...	...	1
97	1	...	...	...	...	1
98	1	...	...	...	...	1

Contractors, Housing Projects, Plumbing,
Food Plans, and Miscellaneous:
527 3,503 490 1,101 127 5,748
Total Sales for Year—1953:
5,335 5,042 7,179 1,420 985 19,561
Note: This report represents only sales within the
area served by NES.
TOTAL
5,423 5,150 6,203 1,985 1,090 19,851

NOLIN
Leads the Field



New Dry Beverage Cooler

- LEADS IN CAPACITY
- LEADS IN QUALITY
- LEADS IN PERFORMANCE
- LOWEST IN PRICE

NOLIN MANUFACTURING COMPANY
1400 LLOYD ST. PH. LD. 57
MONTGOMERY, ALABAMA

sales in both years, but increased that dominance in 1954. Between them (no individual names were revealed in the report so it is not possible to determine the sales rise of individual dealers) they sold 2,894 units of the 13,999 sold by all dealers in 1953 and 3,723 of the 14,104 sold by all dealers in 1954.

The top ranking outlet, selling a total of 1,985 units during 1954, sold the most ranges, refrigerators, and freezers. The second ranking retailer, with a total of 1,738 units, sold the most water heaters and clothes dryers.

The top ranking dealer dominated freezer sales with 424 units sold, just short of half of all freezers sold by dealers. His closest rival on this product (who ranked 13th in total sales) sold 90 freezers. No. 3 dealer sold 73. Ten other dealers sold between 10 and 36 freezers during the year.

The top two dealers gobbled up clothes dryer sales, selling 136 and 420 dryers, respectively. Their nearest rival sold 53 and only 11 others sold more than 10 dryers.

They were 1-2 in water heater sales, too, selling 346 and 654, respectively. Their nearest competitor sold 135 water heaters and 14 other dealers sold 10 or more.

Refrigerator sales were distributed much more evenly. No. 1 sold 583 and No. 3 sold 361. Two others sold more than 300 refrigerators, four sold more than 200, and eight others sold more than 100 refrigerators. Forty-nine other retailers sold more than 10 refrigerators.

Range sales were also compara-

tively evenly distributed. No. 1 sold 496 ranges and No. 3 sold 320. Two others sold more than 200 ranges and 10 others sold more than 100 ranges. Fifty-six additional dealers sold more than 10 ranges each.

Of the 98 reporting dealers, 12 sold more than 300 major appliances during the year—or one for each working day. Forty-eight dealers sold less than 52 appliances for the year—or less than one per week.

\$2,500,000 Expansion, Retooling Program Announced by Norge

CHICAGO—A \$2,500,000 expansion and retooling program at two plants was announced recently by Norge, a subsidiary of Borg-Warner Corp.

Additions will be built to factories in Effingham, Ill., and Herrin, Ill., to provide approximately 200,000 more sq. ft. of manufacturing and warehousing space, Virgil C. Rice, vice president of manufacturing and engineering, said.

Construction and retooling operations are scheduled for completion by June 1, 1955.

"Production of automatic washers and clothes dryers will be doubled, and manufacture of built-in and conventional ranges, and conventional washers increased substantially as a result," Rice said.

Coolerator Factories' Inventory Plants I and II Duluth, Minn. Offer Over \$1,000,000 Inventory of Refrigerator and Freezer Parts including

Tecumseh compressors— $\frac{1}{8}$ h.p. through $\frac{3}{4}$ h.p., Cutler-Hammer refrigerator thermostats, Bundy tubing, copper tubing, freezer baskets, refrigerator and freezer hardware, aluminum cold plates, Morrill 3-watt and 6-watt fan motors, finned condensers, plate condensers, cold rolled steel, galvanized steel, hot rolled steel, paint, gaskets, wire shelving, porcelain crisper and meat pans, wiring harnesses, insulation, packing materials, screws, nuts, bolts, washers and fasteners.

All Parts in New Condition

Contact R. E. Deaux
Box 399, Duluth, Minn.
or telephone Market 4-5712
for details and appointments.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

AIR CONDITIONING and refrigeration sales, design and application. Fifteen years' experience design, manufacturing, application and sales. Now connected with national manufacturers in highly responsible sales position. Desire connection with long established distributor-contractor, financially sound and with nationally advertised lines, to handle complete sales and engineering with possible lead to partnership. Or will consider connection with successful manufacturer's representative. Locate only in Southeast, South-central or Southwest. Completely competent in sales and application from one through 100 tons. Sales training experience. Connection change desired to eliminate road travel and to permanent family location. Please address all replies to: BOX A5166, Air Conditioning & Refrigeration News.

MANUFACTURER'S REPRESENTATIVE desires a quality commercial refrigerator line and other refrigeration specialties. 15 years' experience in supermarket design and commercial installations. Now contacting dealers and wholesalers in northwestern Ohio, southern Michigan, and northern Indiana. BOX A5171, Air Conditioning & Refrigeration News.

AIR CONDITIONING and industrial oil burner service and installation man. Ten years' experience in field. Past eight years field engineer with eastern air conditioning-industrial oil burner distributor. Graduate Minneapolis-Honeywell Control and Technical School. Married. Age thirty-one. Willing to travel or relocate. BOX A5172, Air Conditioning & Refrigeration News.

SALES EXECUTIVE specializing in truck refrigeration equipment, with 14 years of combined research, design, engineering, manufacturing and sales experience. Wishes sales position with manufacturer or user of similar equipment. Have OEM and user contacts. Will relocate and travel. Reply BOX A5174, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

WHOLESALE REFRIGERATION parts counterperson, salesman. Must be experienced. References required. Apply: ACE REFRIGERATION SUPPLIES, INC., 46 North West 36th St., Miami, Florida.

SALES MANAGER for N.Y. Office, now employed, probably second in command, about 35, and in present position at least 5 years, selling fans, blowers, coils or related air conditioning and/or ventilating equipment. He knows and is known by architects, consulting engineers and engineers of large commercial and industrial firms in New York area. This is a most unusual opportunity. A good annual income is guaranteed with a territory profit-sharing arrangement. Please reply only if you can meet all the specifications. Address: J. Taylor, CONNOR ENGINEERING CORP., Danbury, Conn.

SALESMAN, EXPERIENCED selling refrigerated cases, shelving, etc., to supermarkets, wanted by established Husemann distributor. Must be able to make own expert layouts. Salary, bonus, car allowance. Write fully, ELECTRIC PRODUCTS, INC., 5927 Baum Blvd., Pittsburgh 6, Pa.

AIR CONDITIONING, New York City. Draftsman, permanent basis, experienced in air conditioning, heating & ventilating trade. Salary remuneration dependent upon experience & ability. Sample of work requested. For appointment, phone WH1444-4740.

WANTED—MANUFACTURERS' representatives now contacting commercial refrigeration dealers in the following territories: Chicago, Atlanta, Florida, and East. Must be able to sell quality equipment: fast-growing line of special commercial refrigeration items of interest to established refrigeration dealers. Replies confidential. Write: Paul R. Stewart, C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

THOROUGHLY EXPERIENCED commercial serviceman by company in southwestern Ohio. Guaranteed minimum forty hour week year round. Commission paid on sales. In letter state experience, age, salary expected, habits etc. Also give any experience in heating, ventilating and air conditioning. Write BOX A5159, Air Conditioning & Refrigeration News.

MANUFACTURER'S REPRESENTATIVES wanted. We have two excellent territories open: Virginia, North and South Carolina; also Florida, Georgia and Alabama. Complete line refrigerated display and storage fixtures, including latest design self-service models for supermarkets; also bakery refrigerators, and complete line institutional and restaurant refrigerators. Contact dealers, distributors and food chains. Give complete details as to experience and industry references in first letter. Replies held in confidence. BOX A5160, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER—capable of assuming responsibility for supervising the application and service of residential and packaged commercial air conditioning equipment for a leading manufacturer. Please write stating age, education, experience and salary requirements to BOX A5161, Air Conditioning & Refrigeration News.

RESIDENTIAL AND commercial air conditioning factory representative for large manufacturer. Requires engineering background and mature experience in distribution of air conditioning products. Capable of developing promotional plans, distributor and dealer training programs. Knowledge of markets, products, applications and development work necessary. Staff position. Write to BOX A5163, Air Conditioning & Refrigeration News. All replies "Confidential."

ASSISTANT SERVICE manager. Manufacturing company located in Midwest. Must have had field service experience. Give resume of education and experience. BOX A5164, Air Conditioning & Refrigeration News.

FACTORY PRODUCT manager—Commercial refrigeration and ice making units for large manufacturer. Requires engineer with experience in sales and application of condensing units to refrigeration fixtures and cases. Capable of analyzing product lines and applications. Write BOX A5170, Air Conditioning & Refrigeration News. All replies "Confidential."

WANTED: MANUFACTURER'S representatives—New York, New Jersey, and New England States to sell nationally known air conditioning and commercial refrigeration low sides. Expansion program provides opportunity for exclusive representation of well known complete line. Write giving background and present lines. BOX A5175, Air Conditioning & Refrigeration News.

WANTED: FACTORY authorized service contractor for Louisville, Ky. National major appliance manufacturer of complete household and commercial refrigeration equipment desires to make a connection with qualified servicing company. Service contractor must have sufficient capital to stock functional service parts, adequate space with convenient location. Write giving details of experience and qualifications in first letter. BOX A5173, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

MAKE MONEY with the most compact self contained Kesco model K-40 12 foot head condensate water disposal unit designed for air conditioners, ice cube bins, drinking fountains. Only 9" high, 11" wide, 4 1/2" thick. Complete with floodproof motor and switch. List \$50.00. Order from your jobber or write KESCO PRODUCTS CORPORATION, P. O. Box 84, Springfield Gardens, New York.

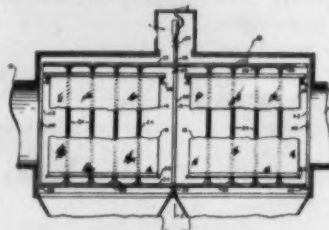
ATTENTION SERVICEMEN: Save 25 to 50% on your refrigeration parts. Send for our catalog of values today. Here is only one of our money saving offers. 1 1/2" O.D. copper connections x 14 1/2" overall vibration eliminators, \$4.65 each. Lot of 10, \$40.00 each. WALTER W. STARR REFRIGERATION SUPPLIES, 2833 Lincoln Avenue, Chicago 13, Illinois.

COMBINATION FREEZER and refrigerator 7 1/2 cu. ft. with stainless steel top—36" H—24" W—24" D. 5 cu. ft. refrigerator—2 1/2 cu. ft. freezer—Tecomseh sealed units—Ideal for small space. Original cost \$329.95. Will sacrifice \$130 in lots of three, or \$140 single. STRAUSS DISTRIBUTING COMPANY, 1421 N. W. 7th Avenue Miami, Florida. Phone Miami 82-4558.

PATENTS

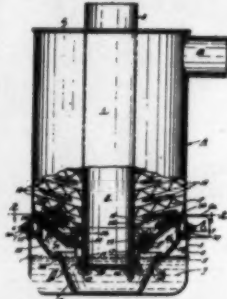
Week of November 16 (Concluded)

2,694,464. ELECTRICAL PRECIPITATOR. Harry A. Wintermut, Plainfield, N. J., assignor to Research Corp., New York, N. Y., a corporation of New York. Application Feb. 9, 1951, Serial No. 210,212. 4 Claims. (Cl. 153-7.)



1. In an electrical precipitator including a plurality of extended surface collecting electrodes, ribbon-shaped discharge electrodes positioned adjacent the collecting electrodes with the extended surfaces of the ribbon-shaped discharge electrodes extending substantially normal to the extended surfaces of the adjacent collecting electrodes, the width of said ribbon-shaped discharge electrodes being substantially greater in the plane perpendicular to its complementary collecting electrodes than in the direction of gas flow, a plurality of elements projecting from the extended surface of the ribbon-shaped discharge electrodes substantially along the medial line thereof, said elements having sharp points directed normal to the extended surface of the discharge electrode to form points of electrical discharge whereby pith ball action of dust particles between the collecting and discharge electrodes is substantially eliminated, and said elements being spaced apart along the discharge electrode whereby the flexibility of the discharge electrodes in a direction perpendicular to the plane of extension thereof is not substantially reduced.

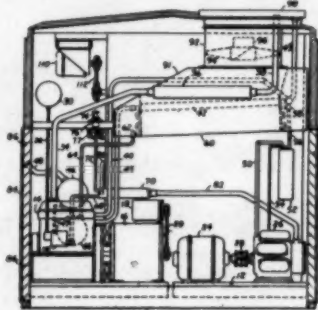
2,694,465. WET-TYPE AIR CLEANER. Wilfred W. Lowther, St. Paul, Minn., assignor to Donaldson Co., Inc., St. Paul, Minn., a corporation of Delaware. Application Jan. 27, 1951, Serial No. 208,127. 14 Claims. (Cl. 153-15.)



11. In a wet-type air cleaner, spaced generally cylindrical walls defining an outer casing with an air inlet passage leading downwardly into its lower portion and a

concentrically-located chamber leading upwardly from the lower portion of the casing, a downwardly displaceable cup-like section for the casing and defining a liquid reservoir in the lower portion of the casing having its bottom spaced below the discharge end of the inlet passage and wherein air passing from the inlet passage to said chamber reverses its direction around the discharge end of the inlet passage, releasable anchoring means securing said displaceable cup-like section in operative position an air outlet from the upper portion of the casing, a centrally apertured generally annular baffle wall structure disposed concentrically with respect to and adjacent to the discharge end of inlet passage and providing a relatively quiescent liquid-collecting zone thereabove, the lower marginal edge of said baffle wall structure being generally spaced from a marginal edge portion of a wall of said inlet passage to define therewith a substantially annular liquid return passage from said quiescent liquid-collecting zone to the air stream at a place immediately adjacent to but posterior to the said marginal edge portion of the inlet passage wall, an upper marginal portion of said generally annular baffle wall structure defining a generally circular side of an upwardly directed air passage for the liquid reservoir to said chamber, a filter element supported by said generally annular baffle wall structure and spanning said upwardly-directed air passage, releasable anchoring means detachably but positively securing the baffle wall structure to the discharge end portion of a wall defining said inlet passage and releasable anchoring means detachably but positively securing said filter element to said annular baffle wall, said baffle wall and filter element being removable through the bottom of the casing as a unit when the displaceable bottom casing section is removed, and said filter being removable from the baffle structure when said unit is removed from the casing.

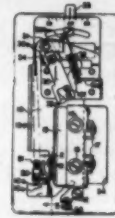
2,694,553. REFRIGERATION APPARATUS FOR RAILROAD CARS. Gerald E. Hicks, La Crosse, Wis., and John Francis Daly, Alhambra, Calif., assignors to The Trane Co., La Crosse, Wis., a corporation of Wisconsin. Application Jan. 4, 1951, Serial No. 204,432. 5 Claims. (Cl. 257-3.)



1. A refrigerated vehicle comprising an elongated enclosure, louvered doors pivoted to each of the sides of said enclosure at one end, an electricity generating unit mounted in said enclosure with its axis of rotation extending transversely of said enclosure, a refrigerant compressing unit mounted in said enclosure with its axis of rotation extending transversely of said enclosure, said refrigerant compressing unit being energized by said elec-

tricity generating unit, a refrigerant condenser mounted in said enclosure above said refrigerant compressing unit, means for conducting refrigerant from said refrigerant compressing unit to said refrigerant condenser, an opening in the roof of said enclosure, a duct extending from said refrigerant condenser to said opening and means for moving air into said enclosure through said louvered doors, through said refrigerant condenser and discharging said air from said enclosure through said duct, an evaporator, means for conducting refrigerant from said condenser to said evaporator and from said evaporator to said refrigerant compressing unit, means for moving the air of said enclosure through said evaporator to remove heat from the air.

2,694,757. HUMIDITY RESPONSIVE SWITCH. Stanley W. Nickels, St. Louis Park, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application July 5, 1952, Serial No. 297,343. 4 Claims. (Cl. 300-61.06.)



1. In a humidity responsive device, a base, a switch of the self return type carried by said base and having an actuator movable with respect thereto, a humidity responsive element, means for adjustably positioning one end of said element on said base, a lever one portion of which overlies a portion of said base, another portion engages said actuator and a third portion is connected to said element, and a laterally flexible reed interconnecting said lever and said base and serving as a lateral abutment between said base and said lever, said lever and said base being formed to provide a free length of reed therebetween not laterally engaged by either said base or said lever, said element and said lever being disposed so that said reed is placed in tension when force is applied to said actuator.

DESIGNS

173,472. AIR CONDITIONER CABINET OR SIMILAR ARTICLE. Robert D. Budlong, Skokie, Ill., assignor to Amana Refrigeration, Inc., Amana, Iowa, a corporation of Iowa. Application Feb. 3, 1954, Serial No. 23,816. Term of patent 14 years. (Cl. D63-4.)



WHY WAIT?

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Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request to the purchasing officer under which the purchase is listed in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Ordnance Ammunition Center, Joliet, Ill.; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices.

Invitations for Bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q" or, if numbered, the number will be followed by the letter "Q."

Description	Quantity	Invitation No.	Opening Date
Little Rock District, Corps of Engineers, Little Rock, Arkansas			
Construction 1-story masonry cold storage warehouse approx. 3,000 sq. ft.	Job	55-32B	16 Mar 55

Description	Quantity	Reference No.	App. Bid Date
Corps of Engineers, U. S. Army, Office of the District Engineer, 4735 E. Marginal Way, Seattle 4, Washington			
Cold storage bldg., Great Falls AFB Montana, work involves constr. of reinforced concrete single story cold storage bldg. with approx. 10,550 sq. ft. in area of which approx. 3,190 sq. ft. is covered platform area, provide necessary utility services, asphaltic concrete paving, remove wood, frame lean-to and relocate refrigeration compressor units. No deposit on plans.	1 ea.	ENG-45-108	17 Mar 55

Description	Quantity	Reference No.	App. Bid Date
Contracting Office, Arnold Engineering Development Center, Air Research & Development Command, Tullahoma, Tennessee			
System, air conditioning, complete with nominal 40-ton self contained unit; supply, return, and outside air ductwork; necessary automatic temperature controls; grills, registers, and dampers; and all necessary mechanical and electrical utility connections in accordance with USAF Spec. No. AESI-55-2 and drawings DP-6A, DP-6B, and DP-6C. Device, digital, temperature recorder. To record at least 108 points automatically with provisions to record part of the points at any given time. Response time of recorder to be a maximum of 1/2 seconds. The recorder to visually indicate which point is being recorded. This equipment is to be Leeds and Northrup multiple, point recorder, type 6035G-A1-120 or equal or Minneapolis-Honeywell 108 Point Scanning System Honeywell Type 153 or equal.	1 ea.	40-600-55-19	2 Mar 55

Description	Quantity	Reference No.	App. Bid Date
Officer in Charge of Construction, 5th Naval District, Norfolk, Virginia			
Replacement of refrigerator	Job	45286	1 Mar 55

boxes at Nat'l Security Council Cheatham Annex Williamsburg, Va. Deposit of \$10 required for plans and specs.

Description	Quantity	Reference No.	App. Bid Date
Purchasing Division, Atlanta General Depot, U. S. Army, Atlanta, Georgia			
Display case, mechanically refrigerated frozen food open cold self-service without canopy individual 8-ft. lengths.	7 ea.	QM-09-030 55-57-B	25 Feb 55
Iron heat sealing hand pre-pack type.	6 ea.	"	"
Scale pre-packing, computing with electric lighting, meat, 15-lb. capacity.	1 ea.	"	"
Stand check-out motorized standard Dayton model CBA 144 or equal.	3 ea.	"	"
Table, pre-packing refrigerated with inset rolling conveyors, 8 lin. ft., Tyler Corp. model tor or equal.	1 ea.	"	"
Table, pre-packing meat with cut sheet rack holder and cutter, 14 ft., Husemann or Weber or equal.	2 ea.	"	"
Table, weighing and labeling, pre-packing meat.	1 ea.	"	"
Display case, refrigerated meat self-service with read loading bottom storage compartment without canopy with two sets of aluminum trays, approximately 36 lin. ft. including one pair of ends.	1 ea.	"	"

FOREIGN OPERATIONS ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
Government of India Supply Mission, 2536 Massachusetts Ave., N.W., Washington 8, D. C.			
Water coolers.	4 units	Tender No. BI(C)307	2 Mar 55

GENERAL SERVICES ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
General Services Administration, Business Service Center, 7th and D Sts., S.W., Washington 25, D. C.			
1/2-ton air conditioning units.	8 ea.	4H-57055-R	11 Mar 55
Compressors.	4 ea.	4H-56634-R	14 Mar 55
Trade-ins Air conditioners	2 ea.	4H-57055-R	11 Mar 55

CONTRACTS AWARDED THROUGH FEB. 14

Office of the Post Quartermaster, Purchasing and Contracting Division, Fort Bliss, Texas

Repair and/or replacement of existing evaporative cooling units, at Fort Bliss, Texas and William Beaumont Army Hospital, Fort Bliss, Texas.—Job, \$45,358.—Southwestern Sheet Metal Works, 2001 Magoffin Ave., El Paso, Texas.

U. S. Army, 1819 W. Pershing Rd., Chicago 9, Illinois

Refrigerator box, prefabricated, walk-in, sectional min. cap. 845 cu. ft. size 16 by 10 ft.—\$5,225(b).—26 ea. \$56,184.—Victor Products Corp., 901 Pope Ave., Hagerstown, Md.

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Rush my subscription to the NEWS for one year (52 issues) at \$6.00.

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2-21-55

Marley Acquires 2 Canadian Firms In Expansion Move

KANSAS CITY, Mo.—Through negotiations recently concluded, The Marley Co. here has acquired controlling interest in Ajax Engineers, Ltd. and Acton Structures, Ltd., both of Toronto, Ontario, Canada.

The company said the move will permit it "to serve more aggressively expanding industry in our neighboring country which presents a market that promises marked expansion of the cooling tower business.

"To give the field the attention it warrants, the company will participate more actively in the business in the dominion and feels it can best be done through local units."

Like the parent organization, Ajax Engineers is a manufacturer of water cooling towers for industrial, refrigeration, and air conditioning use. This equipment has been produced under license from Marley. Ajax also fabricates steel transmitter towers for radio and television stations.

Acton Structures handles sales and field construction of Ajax products and imports and sells smaller Marley cooling units made in the U. S. Under the reorganization, the name of the latter organization becomes Marley Canadian, Ltd.

R. A. Wilbur, Toronto, who has been an officer of both companies, will be president and general manager. Leon T. Mart, president of The Marley Co., is chairman of the board of directors. William C. Weedon, of Kansas City, goes from the general accounting department of Marley to Toronto to become treasurer of Marley Canadian.

Frank Klein To Manage Distributor Development For Unarco Cooling Div.

CHICAGO—Frank D. Klein has been named manager of distributor development of the Union Asbestos & Rubber Co.'s Cooling Div., it was announced recently by Chester S. Stackpole, general sales manager of the Heating and Cooling Div.



Klein will supervise organization and development activities of Unarco's package air conditioning distributors throughout the United States, Stackpole said.

He received his bachelor's degree in chemical engineering at the University of Michigan in 1933 and began his business career with the Briggs Mfg. Co. of Detroit. In 1939 he became vice president and chief engineer of North American Engineering, Inc., St. Louis, and subsequently held executive positions with both Westinghouse and Frigidaire.

Immediately prior to joining Unarco, Klein was sales manager of Schnacke, Inc. He is an associate member of the American Society of Refrigerating Engineers.

General Controls Marks 25th Anniversary

GLENDAL, Calif.—As one of the exhibitors at the January Home Builder's Show in Chicago and Heating & Ventilating Exposition in Philadelphia, General Controls Co. began its celebration in 1955 of the company's silver jubilee, marking 25 years as a leading manufacturer of automatic controls for the home, industry, and the military.

Major plans are under way for celebrating this milestone in the history of the company with special events throughout the year, coupled with one of the most ambitious sales promotion and advertising programs the controls manufacturer has ever undertaken, according to J. F. Ray, vice president in charge of sales.

Started in 1930 in Oakland, Calif., the company had extremely modest beginnings. In that year, William A. Ray and Charles Ray borrowed \$10,000 from their

father and opened a factory in a small attic with only one lathe for equipment.

The two brothers were the sole employees.

Today, with headquarters in Glendale, the company has manufacturing plants in Glendale, Calif.; Skokie, Ill.; and Burbank, Calif. Employees now number more than 1,700 throughout the country, and General Controls has 38 branch offices, as well as a wholly-owned subsidiary in Toronto, Canada.

The growth of the company also is reflected in steadily increasing gross sales.

Gross sales in the first year, 1930, were only \$1,800. In 1932 sales were just \$12,000. In 1933 they reached 25,000. But in 1953, they exceeded \$18,000,000.

Products include all types of automatic controls in the fields of pressure, temperature, level, and

flow. Sales, service, and distribution facilities are nationwide in scope.

Now in its silver anniversary year, the company has six major factory warehouse regions.

Calif. Firm Formed To Handle Acme Engineering, Sales

LOS ANGELES — Charles C. Porter and John B. Macomber have formed Acme Industries of Southern California, an organization which will be devoted to the engineering and sales of Acme air conditioning and refrigeration equipment in this area.

The partners recently returned here after a week of sales and engineering product briefing at Acme Industries, Inc., Jackson, Mich.

Porter is a University of Ala-

bama graduate engineer. With Macomber he had been employed by a local air conditioning contractor prior to forming the new company. He also has several years of experience with a prominent control manufacturer.

Macomber is a graduate in engineering from the University of Southern California. Before working on the design, sales, and installation of commercial air conditioning equipment for a contractor-distributor, he was employed by an air filter manufacturer in San Francisco.

Acme Industries of Southern California will operate from offices at 5205 Hollywood Blvd., Los Angeles.

The Engineer Is a Lady!

DALLAS — Fran Daniels has been appointed production planning director of Frigikar Corp. here, automotive air conditioning manufacturer. She is said to be the only woman industrial engineer in the United States.

COMING MARCH 21

The annual air conditioning issue of AIR CONDITIONING AND REFRIGERATION NEWS

...with detailed specifications on all 1955 model air conditioning units

This annual feature of The NEWS will be read and saved by most of the 19,500 paid subscribers—thousands more on company routing lists will see it. This information-packed issue is edited to be of lasting value to your distributors, contractors, dealers, salesmen, and servicemen—the men who will sell and service your air conditioning in 1955.

The best target for your advertising

The men who grew up with air conditioning have been readers of The NEWS for years. Newcomers to the industry are turning first to The NEWS for the information they must have to find a key spot in the marketing and sales picture. The March 21 issue will give them the facts—and give you the opportunity to tell your know-how story to the most experienced audience of air conditioning men in the world.

Reserve your important space **NOW** in the annual air conditioning issue of AIR CONDITIONING & REFRIGERATION NEWS.

Closing date: March 11

Publication date: March 21

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MICROMOTORS
One of largest stocks
in the world!
FACTORY DISTRIBUTORS
CYCLO-FREEZ CORP.
MARVIN L. "FERGIE" FERGESTAD
6318 Cambridge, Mpls. 16, Minn.
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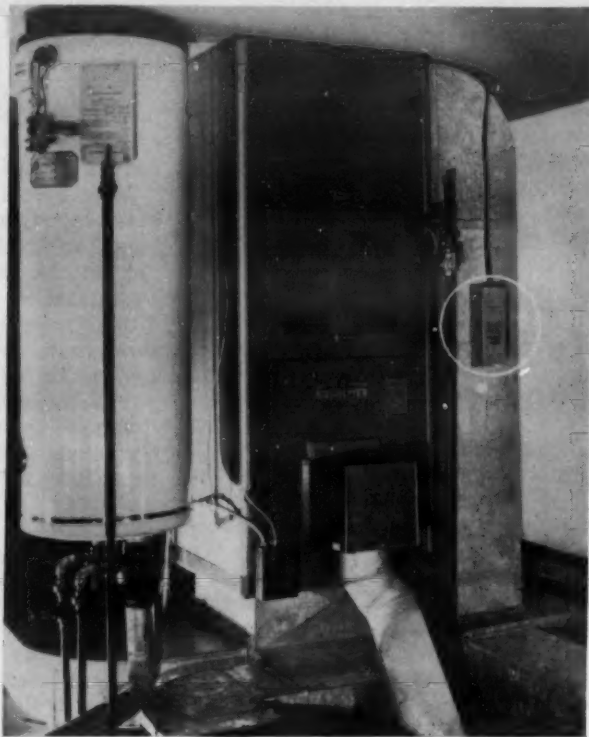
**AIR CONDITIONING &
REFRIGERATION**

News

450 W. Fort Street, Detroit 26, Michigan

Offices: 521 Fifth Ave., New York 17; 134 S. LaSalle St., Chicago 3; 15515 Detroit Ave., Cleveland 7.

COMPLETED INSTALLATION of a Sampson Sun-Lite-Aire Purifier looks like this. Operating ahead of the filter in the cold air return duct, the unit reduces to a negligible amount air-borne organisms in the air of the home. A Westinghouse Sterilamp ultraviolet lamp produces ultraviolet rays that also attack odors.



Air Purifier--

(Concluded from Page 1, Col. 5) lamp. He then locks it into place and plugs the unit into any 110-120 volt, 60 cycle, a.c. line.

The unit comes with lamp and cord and includes a special transformer designed for the cold cathode Sterilamp. The lamp has a life of 12,000 hours. Operation is said to cost about two cents a day for continuous operation.

The unit will accommodate an average 6-room house, purifying and deodorizing about 1,000 c.f.m. of air. Counts of air-borne micro-organisms made in a home test with air recirculated at 1,000 c.f.m. showed that a "kill" of up to 90% of micro-organisms present can be expected.

The Sterilamp used emits ultraviolet radiation at two principal wave lengths. Radiation at one wave length produces ozone to neutralize odors. At the other, it destroys micro-organisms.

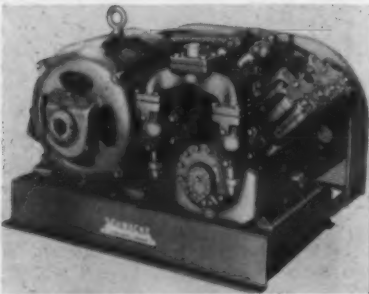
The Sun-Lite-Aire Purifier retails for \$28.95, Dr. Isenberg said. Replacement lamps retail at \$8 each.

To the builders, Well Built Homes, Inc. here, the opportunity to offer an air purifier as standard equipment in each new home was attractive because, at low cost, the firm could offer prospective purchasers an unusual sales feature that would have strong appeal.

Neil To Distribute Mitchell

MIAMI, Fla.—Neil Distributors, Inc. here has recently signed a contract with the Mitchell Mfg. Co. to distribute Mitchell room air conditioners in southeastern Florida.

Herbert Neil is president of the distributorship and H. Press is general manager.



"TYPHOON" ... "SCHNACKE" have been teamed many times in difficult and unusual jobs...

... such as supplying air conditioning and refrigeration for the world's largest theater. The Blaquita, in Havana, Cuba, shown above, seating 6,700 patrons, is supplied air conditioning as well as ice for its mammoth rink by combined TYPHOON-SCHNACKE powered equipment. No better endorsement for quality and integrity of product could be made than that of TYPHOON by the installation of these ten 50 H.P. SCHNACKE Units.

SCHNACKE, INC.

1105 Governor St.
Evansville, Ind.

Write for complete engineering data.

Complete Air Conditioning Planned for New 250-Bed Hospital at Lynchburg

LYNCHBURG, Va.—Ultra modern 250-bed General hospital now being constructed here will be completely air conditioned.

A 400-ton centrifugal refrigeration unit manufactured by Worthington Corp. will supply air conditioning for all offices and patients' rooms. A Worthington 80-ton reciprocating unit will handle a separate system for air conditioning operating and surgical recovery rooms.

The "H" shaped building, designed by Samuel Hannaford & Son of Cincinnati, Ohio, architect, will be three stories high (with provisions for another story to be added later), with two floors located below ground level.

In working out the heat balance, Wiley & Wilson, consulting engineers, Lynchburg, assisted by Worthington engineers, decided that a condensing steam turbine should drive the centrifugal compressor for maximum operating economy under the specified conditions. The boilers supplying steam to the hospital laundry will also supply steam for driving the Worthington turbine.

Perimeter spaces of building will be air conditioned by use of chilled water piped to fan and coil air conditioners. Interior spaces will

be air conditioned by low pressure duct system.

Besides refrigeration and air conditioning equipment, Worthington will supply such power plant auxiliaries as boiler feed pumps, water circulating pumps, steam condenser, 150 kw. emergency turbine generator, water chiller, heat exchanger, and oil separator.

Mechanical contractor is S. H. Guza of Richmond, Va.



T. I. Byrd



R. L. Perkins

5 Buy Into Lau--

(Concluded from Page 1, Col. 3) will also act as consultant and advisor.

During the past year, the company opened a manufacturing plant in Kitchener, Ont., Can., as part of its present expansion program.

The company, begun 25 years ago, manufactures blowers for air conditioners and warm air heating furnaces and portable window fans and residential exhaust cooling fans.

Warranty Costs--

(Concluded from Page 1, Col. 5) decision on that section of the revenue act that permits tax reductions when a particular product's sales price has been "readjusted" by a discount, rebate, or allowance. The ruling said in effect that a manufacturer who repairs or replaces a warranted item is giving the buyer such an allowance or rebate because the firm has spent money for the consumer's benefit.

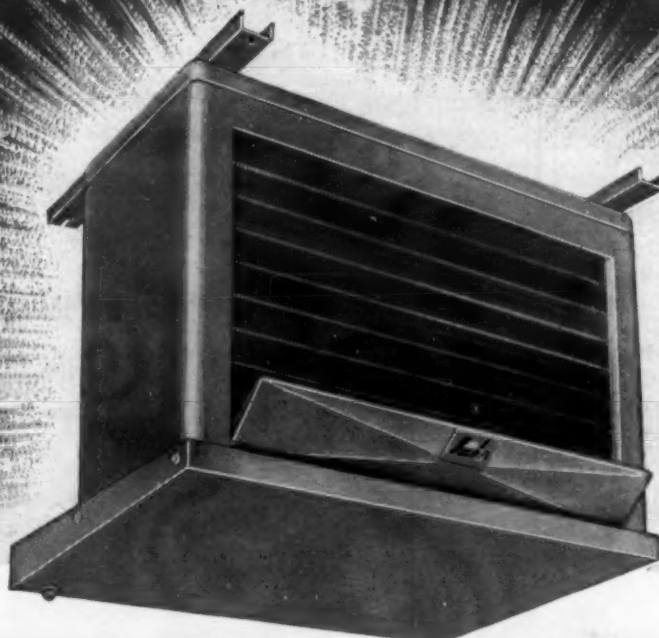
However, Court of Claims decision on another phase of the case had made a ruling against a claim by G-M that would have resulted in an even greater savings in excise taxes. The corporation had contended that the \$5 extra charge for the five-year warranty on refrigerating units should not be included as part of the over-all price on which the tax was figured.

The Claims Court agreed with the government's contention that the \$5 charge was part of the over-all price for the refrigerators and not separate.

In its brief filed before the Supreme Court, the government contended that the Court of Claims ruling giving G-M a refund is without precedent, that it will mean a heavy loss of revenue for the government, and that it will make administration of the excise tax law very complicated.

Manufacturers can apparently file claims for refunds under excise taxes paid in the past four years.

SOMETHING New AND Revolutionary IN Low Temperature REFRIGERATION



INNER-FIN UNITS by BUSH

'HG' Hot Gas Defrost Unit Coolers

'ED' Electric Defrost Unit Coolers

'GD' Glycol Defrost Product Coolers

The magic of INNER-FIN, amazing Bush development in finned coil design, has now been applied to Bush 'HG' Hot Gas Defrost Units (Illustrated) . . . 'ED' Electric Defrost Units . . . and 'GD' Glycol Defrost Product Coolers.

All these Bush units defrost from the inside. INNER-FIN construction (a patented Bush exclusive) provides greater surface area . . . distributes heat quickly to the place where frost forms . . . defrosts coils rapidly. Result: ice-free coils that operate at peak efficiency. Also: minimum room temperature rise during defrost cycle.

HOW THEY DEFROST

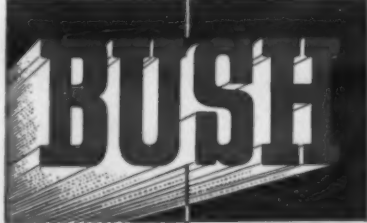
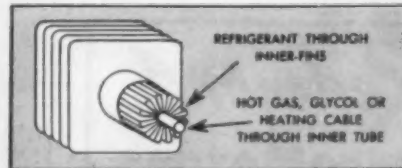
'HG' HOT GAS DEFROST UNIT COOLERS — heat from the compressor is circulated within the coils.

'ED' ELECTRIC DEFROST UNIT COOLERS — an electric cable housed within the inner tube provides heat source.

'GD' GLYCOL DEFROST PRODUCT COOLERS — a separate circuit comprising glycol heater and pump provides for the circulation of heated glycol within inner tube of the Inner-Fin coil.

Write TODAY for Bulletin #835 containing full information on these amazing new BUSH units.

Rounding out a complete line of Low Temperature equipment, Bush also offers the Therm-O-Cycle System and water defrost units.



BUSH MANUFACTURING COMPANY - West Hartford 10, Connecticut

RIVERSIDE - CALIFORNIA